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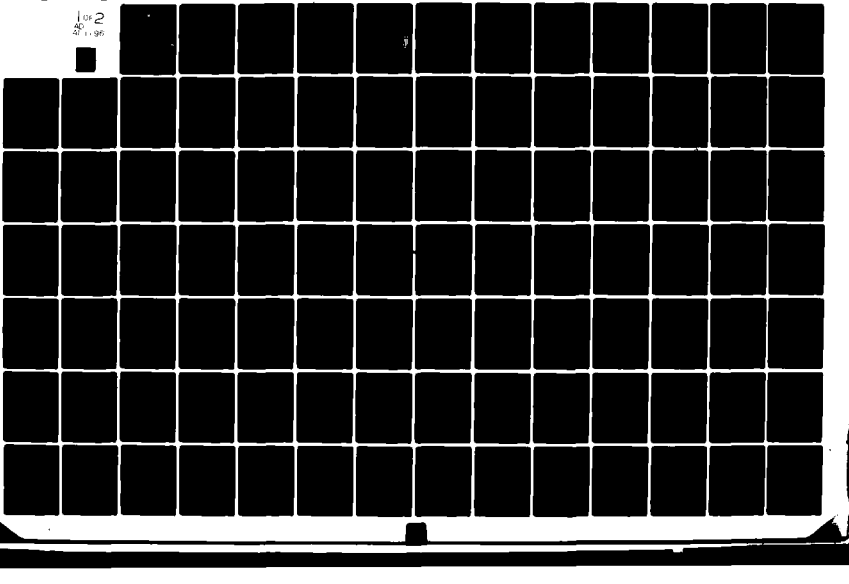

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SOCIAL DESIRABILITY RESPONSE BIAS IN THE ORGANIZATIONAL ASSESSMENT PACKAGE

Steele C. Coddington, Jr., Capt., USMC

LSSR 93-81

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This thesis investigated the intervening effects social desirability response bias has upon respondent scores for the Air Force Organizational Assessment Package (OAP). The analysis uses bivariate correlation, analysis of variance, and linear regression techniques to determine whether this bias influences supervisory ratings (OAP factors 818 and 819), organizational ratings (OAP factors 820, 821, and 824), and the Organizational Job Inventory (OAP factor 808). The indices used to measure individual social desirability response bias were the Marlowe-Crowne Social Desirability Index and the RD16. Results of the analysis found the OAP was influenced by this type of bias in the three areas examined. Regression analysis revealed no reasonable predictors within the current OAP for determining a respondent's degree of response bias.

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SOCIAL DESIRABILITY RESPONSE BIAS IN THE ORGANIZATIONAL ASSESSMENT PACKAGE

A Thesis

Presented to the Faculty of the School of Systems and Logistics

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In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Engineering Management

By

Steele C. Coddington, Jr.
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CHAPTER I

INTRODUCTION

OVERVIEW

> A human being is not born with the ability to perform well in an organization, any more than he or she is born with the ability to invest money wisely or solve air-pollution problems [Szilagyi and Wallace, 1980:2].

Individual performance in the organizational setting has been a concern of leaders and managers since organizations were formed to undertake productive efforts. Rising labor costs, scarcity of capital, and levels of productivity which are insufficient to sustain economic growth have forced managers to explore the potential of human contribution to output (Walton, 1972:71). This increased awareness of human potential within organizations during the early 1960's led to the evolution of a new field of inquiry born out of the applied behavioral sciences, commonly known as organizational development (OD). The promise of OD was so bright that all three services (Air Force, Army, and Navy) instituted programs that, at a minimum, assisted commanders in determining organizational climate (command climate in the Navy) and supervisory leadership. Some programs go on to assist the commander in alleviating problems that may be discovered through a variety of intervention techniques (Umstot, 1980).

Personality Measurement

The field of OD relies heavily on evaluation techniques first developed in the fields of personality and social psychology (e.g. survey instruments, interviews, etc.) for measuring personality variables (Szilagyi and Wallace, 1980). Many early instruments were designed by consulting psychologists to predict worker performance in the work place. These inventories were devised to measure every aspect of an employee's psychological make-up and often used to judge an applicant's suitability for a job. Personality inventories had not been on the scene long when psychologists found that predicting employee behavior through evaluation of questionnaire responses was not the easy task it had once seemed. Crowne and Marlowe (1964) voiced some of the problems of early psychologist:

> . . . too many people didn't behave as their test responses said they should, and to the psychologists of the 1920's it must have seemed that their subjects were miserably uncooperative.
>
> . . . In the meantime, the situation for the psychologist resembled nothing so much as an armed encounter — the subject resistively glowering across the psychologist's desk, the psychologist struggling to maintain his air of professional imperturbability . . . [Crowne and Marlowe, 1964:vii].

Personality testing went through wrenching changes from the mid-30s through the 50s; psychologists often losing sight of the primary objective — predicting human behavior. Every angle of testing was examined and studied

in an effort to eliminate distortions on the part of the psychologist or the part of the subject.

> These obstacles are all occasioned by the single fact that psychologists, unlike other scientists, are in the uniquely difficult position of studying objects that are in myriad ways similar to themselves [Crowne and Marlowe, 1964:3]

The assessment of personality was still not able to predict with certainty the actions of individuals when, in 1953, A. L. Edwards described a new confounding factor in personality testing — social desirability (Edwards, 1953). Social desirability (SD) is the tendency of a subject to respond in a socially desirable manner. This confounding variable has been researched extensively in the field of personality testing, showing that the effects of SD so permeate and alter the results of questionnaire data that it led one author to state, personality instruments " . . . were found to be so riddled with SD that . . . [they lose] . . . meaning independent of that variable [Cowan and Tongas, 1959:364]". This contamination found in self-descriptions was also extended to the description of others in a study done by Edwards (1959).

Organizational Testing

Doubt about the validity of data gathered in personality testing has also been extended to organizational testing because of its reliance on similar data gathering techniques (Thomas and Kilmann, 1975).

Margulies and Raia (1972) maintain that organizational development is composed of three core elements or phases — data gathering, organizational diagnosis, and action interviews. Of these three phases, data gathering is the most pervasive and it is this phase upon which the other two phases are based (Thomas and Kilmann, 1975).

Questionnaires. Diagnostic data may be gathered through many techniques ranging from observations to interviews or surveys, and any combination thereof. Selection of a specific method depends upon certain constraints placed upon the consultant, such as time, cost, level of participation, and the quantity of data required (Margulies and Raia, 1972). Fixed-response questionnaires have become one of the most popular techniques for data gathering due to several distinct advantages for organizational work (Nadler, 1977). The cost of administering a questionnaire to a large organization is relatively low, yet the spectrum of topics that can be covered is quite high. Responses can be easily summarized, aggregated, and subjected to statistical analysis through the use of preprogrammed computer "packages".

Social desirability. Unfortumately, there are some disadvantages to questionnaires. Some shortcomings stem from the fact that they can be inflexible and often are quite impersonal. A major problem of any "pencil and paper"

measure is that of response bias. It is in this fashion that organizational survey instruments are similar to personality tests. The vast majority of questionnaires use subjective or perceptual questions to obtain their data and in

> . . . analysis of individual reactions to organizational stimuli, measurement processes are often perceptual. The use of perceptions as surrogates for environmental characteristics may, however, create confusion about what is actually being measured [Weiss and Shaw, 1979:127].

This same theme is repeated by still another author:

> . . . they rely primarily on what people say, and rarely include objective observations; they deal with aggregates of individuals rather than with integrated communities. . . [Mizruchi, 1967:46].

These individual reactions or evaluations are shaded by many of the same biases that plague personality inventories. An answer to a questionnaire may be biased because of the respondents' interpretation of organizational stimuli (Golembiewski and Munzenrider, 1973) or because the question is evaluative of self or others (Edwards, 1953, 1959). In pioneering work, Golembiewski and Munzenrider (1973), examined the effects of these biases in an organizational setting. Their conclusion was that pre-intervention self-reports were, ". . . unreliable benchmarkers for estimating change due to an effective OD program . . . [1973:541]."

Organizational Assessment Package

The Air Force currently uses a questionnaire to gather data for organizational diagnostics and improvements. This instrument — called the OAP — has been jointly developed by the Air Force Leadership and Management Development Center (LMDC) Maxwell AFB, Alabama, and the Air Force Human Resources Laboratory (AFHRL) at Brooks AFB, Texas. It was designed to measure elements of the Three Component Organizational Effectiveness Model developed by Hendrix and Halverson (1979a). This organizational model was adapted from the Three Component Leadership Effectiveness Model developed by Hendrix (1979) during an extensive literature review while assigned to AFHRL at Brooks. In this literature review, Hendrix synthesized his model from eight contemporary contingency models of leadership. A detailed discussion of the organizational model may be found in an unpublished masters thesis by Major John M. Hester (1980).

The OAP evolved through three versions to the present format contained in Appendix A. It was designed to measure the basic components of the Three Component Organizational Effectiveness Model — 1) effectiveness criteria (satisfaction, organizational climate, and percieved productivity), 2) mangerial style, and 3) situational environment (Hendrix and Halverson, 1979a). The OAP has been used to provide quantitative indices which will

reflect those aspects of an organization which may change when the organization is modified. Since its use has been extensive, the data base now generated (i.e., approximately 100,000) is often used to provide normative or diagnostic data about an organization.

Change Through Accurate Information

From its first tentative beginnings, OD has evolved into a comprehensive strategy involving applications of certain techniques to particular problems. Research has shown that many of the techniques used are highly effective when correctly applied to the particular problems for which they have been developed. Some techniques, while effective in some situations, are totally ineffective in others (Huse, 1979; Warren, 1977). What this implies is that constructive change requires accurate and useful information about how an organization truly functions, how it should function, and how to make it function more like it should. Collecting data for diagnosis is one purpose of the OAP.

The measures provided by the OAP provide diagnostic material, which in turn influences the selection of change strategies, called interventions, that focus on the causes of the problem. However, if diagnosis, based upon distorted information is incorrect, a great deal of time and effort may be spent in attempting to

solve problems by changing the wrong conditions or by using the wrong intervention strategy. It is therefore imperative that diagnosis and change be based upon accurate information. It is upon this factor — accurate information — that the following chapters will focus.

BASIS FOR STUDY

Problem Statement

The OAP has been validated through a series of studies that isolated specific criteria measured (Hendrix and Halverson, 1979a) and determined how well they correlated with actual OAP results (Hendrix, 1979). In general, the instrument seems to measure what it was designed to measure (Hester, 1980); yet, when the four criterion variables extracted in Hendrix and Halverson's (1979a) first study were correlated with the entire OAP, 43.5% of the variation was unexplained (OAP variables regressed with General Organizational Climate), and in one case as much as 69.6% was left unexplained (OAP variables regressed with Organizational Communications Climate). Full enumeration of explained variation is contained in Table 1.1. This unexplained variance in scores presents an enigma which requires further study. The research presented earlier in this chapter indicates that instruments which rely on evaluations of others, or upon perceptions, are subject to error variance induced by Social Desirability (SD) (Edwards, 1953; Edwards, 1959; Cowan and Tongas, 1959; Weiss and Shaw, 1979; Mizruchi, 1967). In one study (Golembiewski and Munzenrider, 1973), SD accounted for an additional 7.5% of the variance in initial Likert scores.

A person with a SD response bias is one who tends to describe his world in more socially desirable terms

TABLE 1.1

EXPLAINED VARIATION IN THE OAP

Regression analysis	R^2	Dependent variable	Independent variable
OAP variables regressed with General Organizational Communications Climate	0.565	830	201-215,217-234, 238-244,249-258, 403-443
OAP variables regressed with Organizational Communications Climate	0.304	831	201-215,217-234, 238-244,249-258, 403-443
OAP variables regressed with Job Satisfaction	0.547	832	201-215,217-234, 238-244,249-258, 403-443
OAP variables regressed with Percieved Productivity	0.469	833	201-215,217-234, 238-244,249-258, 403-443

Source: Hendrix,1979

to gain the approval of others. It is an abiding feature of self rather than a specific act of conformity to some socially accepted standard or norm (Golembiewski and Munzenrider, 1973). This bias readily adapts itself to questionnaires such as the OAP wherein a respondent is asked to agree or disagree (essentially rating) whether his supervisor performs well under pressure (e.g., question 65) or rate his work group's output of work (e.g., questions 77 and 78). In a study conducted at the University of Washington, Edwards (1959), found that males and females who demonstrate a high degree of social desirability bias will be likely to attribute socially desirable characteristics to someone. Golembiewski and Munzenrider (1973) found that high SD scorers " . . . tend to develop rosey mental sets about organizational relationships . . . low SD scorers would tend to more realistic pre-scores . . . [1973:536]." Thus, depending upon the degree of SD bias inherent in a subject, OAP scores which have not been adjusted for this response bias may not truly reflect the present organizational status nor, as Golembiewski and Munzenrider's results show, be used as a bench mark from which to judge the success of an intervention technique. Golembiewski and Munzenrider found their study to imply " . . . <u>an impactful OD design</u> which starkly highlighted for high SD scorers those darker organizational realities they preferred not to see . . . <u>moderated SD effects on</u>

the post-scores . . . [1973:538]," indicating that both pre and post scores are affected — the former more so than the latter. In short, unless corrected in some manner, social desirability may confound questionnaire results so that they become meaningless.

Justification for the Research

The Air Force has dedicated enormous resources and time to develop and utilize the OAP. Not long before its use, there was only a disorganized, half-hearted attempt to institute some type of organizational development program which one author called a "potpourri" (Umstot, 1980). As of mid-June 1981, LMDC had collected approximately 100,000 cases using the unmodified third version of the OAP (Lloyd, 1981). The investment of time and resources alone demand that proper interpretation be given to the data gathered through use of this instrument.

Objective

The principle objective of this study is to determine whether existing items in the OAP are influenced by social desirability response bias. An associated objective of this study is to determine if there exists within the present OAP valid predictors of a subject's social desirability bias. While it is recognized that other biases may be introduced during the administration

of or in the actual taking of the OAP, this research focuses only upon the intervening effects social desirability may have on respondent behavior.

Hypotheses/Research Questions

Three hypotheses emerge from the review of pertinent literature (Chapter II). Six research questions will be investigated to support or refute the hypotheses. In order to relate the questions to the problem under consideration, the associated hypotheses and the correct objectives are listed as follows:

Objective 1. Determine whether OAP scores are influenced by SD response bias.

Hypothesis 1 — OAP scores will be higher for subjects scoring high* on the SD indices, than respective scores for subjects scoring low on the indices.

Question 1. Are the Organizational Job Inventory (OJI) scores of subjects with high* SD response bias significantly** higher than those with a low SD response bias?

Question 2. Do subjects with high* SD response bias rate their supervisors significantly** higher than subjects with a lower SD response bias?

---

* High and low social desirability response bias is defined in Chapter III, ANALYSIS DESIGN.

** Significant that is in a statistical sense.

Question 3. Do subjects with high* SD response bias rate their organizations significantly** higher than subjects with a lower SD response bias?

Hypothesis 2 — A significant** amount of variance in the OJI factor score, organizational ratings, and supervisory ratings can be explained by the degree of an individual's SD response bias.

Question 4. How much variation in OJI scores, organizational ratings, and supervisory ratings is accounted for by SD response bias?

Objective 2. Determine if there are SD predictors in the current OAP.

Hypothesis 3 — The degree of SD response bias a subject has may be predicted by his responses to questions in the OAP.

Question 5. Which factors or variables in the OAP correlate significantly** with SD index scores?

Question 6. Are positive or negative predictors of SD response bias present within the OAP (e.g., can either high* or low SD response bias be predicted)?

---

* High and low social desirability response bias is defined in Chapter III, ANALYSIS DESIGN.

** Significant that is in a statistical sense.

CHAPTER II

LITERATURE REVIEW

INTRODUCTION

This chapter provides a literature review that places the research effort in proper context. The chapter will review past research dealing with social desirability and its influence on evaluative data. As discussed in the preceeding chapter, social desirability (SD) has been extensively researched in personality and social psychology. Examination of this variable in organizational psychology has only just begun and evidence on the impact SD has upon the measurement of organizational factors is conflicting (Schriesheim, 1979). This is by no means intended as a review of all literature on the subject of social desirability. Such an undertaking is beyond the scope of this investigation; rather, it is an overview of what are percieved (by this author) to be the major contributions to the development of knowledge in this area.

Overview

Whenever the subject of social desirability bias is discussed, one of two research groups is always men-

tioned — A. L. Edwards and the team of Crowne and Marlowe. Edwards devised the first successful instruments to measure a subject's tendency to respond in a socially desirable manner (Edwards, 1953). Later, research questioned Edwards' methodology (Crowne and Marlowe, 1960; Jackson, 1964) but not his construct of social desirability. The literature review will follow development of the social desirability construct, the differentiation of acquiescence and social desirability, and the development of several instruments to measure or correct for social desirability. Finally, it will trace the beginning of a new area of inquiry into the effects of social desirability on organizational assessment instruments.

DEVELOPMENT OF THE SOCIAL DESIRABILITY (SD) CONSTRUCT

Discovery of Social Desirability

The tendency for subjects to describe themselves in socially desirable terms was long recognized by psychologists. But not until 1946, would Meehl and Hathaway stress that a systematic effort be undertaken to understand and measure this biasing factor (Edwards, 1957:vii). Several authors attempted to measure social desirability without success until 1953 when A. L. Edwards published his first paper on the subject. He continued his studies for approximately four more years, until 1957 when he

published the results in a monograph titled; The Social Desirability Variable in Personality Assessment and Research.

Edwards hypothesized that a descriptive personality statement, such as "He is easily embarrassed," could be characterized in terms of its position on what he called a social desirability continuum. In his initial work, a set of 140 personality statements were evaluated for social desirability by a group of 152 judges (Edwards, 1953). Scale values were assigned, printed in inventory form, and administered to a group of 140 students. Items such as, "I like to be loyal to my friends," were found to have a high social desirability scale value (4.14) on the desirability continuum. Statements like, "I like to avoid responsibilities and obligations," had extremely low social desirability scale values (0.68). Edwards found that as the social desirability scale value increased, so did the percent endorsing the statements. The high correlations that were found seemed to support his hypothesis. C. Wright (1957) repeated this study with only a minor variation (Edwards, 1957:18). He asked his subjects to rate the degree to which each statement characterized them. He found a high degree of correlation with the assigned ratings and the social desirability scale values of the statement.

Further inquiry led Edwards to examine the relationship between anonymity and social desirability. Building on work done by Meehl and Hathaway (1946) and Wright (1957), Edwards (1957) sought to determine whether the same correlations could be found between social desirability and the probability of endorsement if subjects were asked to make their self-descriptions anonymously. Edwards administered a 128-item survey to 139 subjects. Correlations found were extremely close to those for the original study. He calculated separate correlations for males and females to determine if sex was a moderating variable, but found that the probability of endorsement for any given item in the instrument was much the same for both groups. Results indicated then, that the relationship between endorsement of a statement and the social desirability scale value of the statement was not dependent on the condition that the subject identify himself.

Social Desirability Scale

Edwards applied his method of scaling to the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI, at that time, was the primary instrument used by psychologists to measure a subject's mental health. Edwards felt that since this instrument had been validated and its component scales were used for personality evaluation, that it would provide an excellent platform for

determining the psychological makeup of individuals exhibiting social desirability. He selected 150 items from the inventory and had them judged for their social desirability. Judges significantly agreed on ratings for seventy-nine items of the original 150. These seventy-nine items became the first Social Desirability (SD) Scale. Edwards later factor analyzed score results and was able to reduce the instrument to thirty-nine statements that showed the greatest differentiation between high and low SD values. This instrument was found to be slightly skewed in a negative direction, but was used as the primary instrument in subsequent studies by Edwards.

The SD construct Edwards proposed was validated and studied by many psychologists during the 50's and 60's. Fordyce (1956) reported correlations between the 79-item SD scale and various clinical scales of the MMPI (Edwards, 1957:27). These correlations are shown in Table 2.1. Merrill and Heathers (1956) reported correlation between the 39-item SD scale and various scales, both clinical and nonclinical, of the MMPI (Edwards, 1957:27). These correlations are shown on the following page in Table 2.2. The scales contained in the MMPI are commonly divided into clinical and nonclinical areas. Clinical scales are designed to assess individual pathological or psychological tendencies when compared to control group

TABLE 2.1

CORRELATIONS BETWEEN THE SD SCALE AND VARIOUS PERSONALITY SCALES

Guilford-Martin Scales[1]	79-Item SD Scale
Cooperativeness	.63
Agreeableness	.53
Objectivity	.71
Taylor's Manifest Anxiety Scale[1]	-.60

[1]Edwards (1953) : N = 106 college males and females: r.

Source: Edwards, 1957

TABLE 2.2

CORRELATIONS BETWEEN THE SD SCALE AND VARIOUS PERSONALITY SCALES

MMPI Scales[1]	39-Item SD Scale
Gough's Dominance scale	.49
Gough's Responsibility scale	.52
Gough's Status scale	.61
Drake's Social Introversion scale	-.90
Taylor's Manifest Anxiety scale	-.84
Winne's Neuroticism scale	-.50
Cook's P-v scale	-.80
Cook's Hostility scale	-.75
Navran's Dependency scale	-.73
Maslow's S-I Inventory[2]	-.85

[1]Merrill and Heathers (1956): N = 155 counseling center males: r_t.

[2]Edwards: N = 30 college males and females: r.

Source: Edwards, 1957

norms. The nonclinical scales (over three hundred new ones) have been developed by independent researchers. These scales were developed within normal populations to assess personality traits unrelated to pathology. A brief explanation of these scales is given in Appendix E.

Social Desirability and Q-Sort

Edwards further applied his scaled items to the Q-sort technique (Edwards, 1957). Q-sort evaluation is a method of ranking descriptive words or statements, from most descriptive (of self or others) to least descriptive. This type of evaluation is most helpful for determining the self-image of a subject in contrast to normative standards. Edwards hypothesized that subjects working under instructions given in a Q-technique study would regard those items with a high social desirability most chatacteristic of themselves. To test this hypothesis, he used 135 items that had been assigned scale values during development of the Edwards Personal Preference Schedual. Q-sorts were administered to one hundred subjects, the mean rating value was calculated, and then correlated with the SD scale value for each item. Correlations were found to correspond to the values previously reported between the probability of endorsement and an item's SD value. The results of this experiment were validated by Kenny (1956).

In another study validating Edwards' findings about Q-sort bias, Cowan and Tongas (1959) state that "Q-sort was found to be so riddled with SD that it looses meaning independent of that variable [Cowan and others, 1960:530]." This dependence sparked many other investigations of SD effects on Q-sort techniques. In one such study, Cowen and others (1960) hypothesized that Q correlation (the correlation between a normative ranking of trait-adjectives and a subject's rankings) would be higher and self concept-ideal self (SC-IS) descrepancy scores (the difference between those trait-adjectives normatively considered ideal and those selected by the subject as self-descriptive) would be lower if the social desirability value of descriptive traits were descernable. Two Q-sort pools, each consisting of forty-four trait-descriptive adjectives, were set up to maximize and minimize the social desirability properties of the constiuent items, respectively. Maximization was obtained by selecting items equally interspersed along a SD continuum. (SD values were established by a prior study.) Minimization was approached by selecting items from the relatively more neutral range of the SD continuum. Fifty-two subjects participated in the experiment. When results were evaluated, correlations between item placement and the SD value of the adjective showed higher in the maximized and lower in the minimized pool. In support of

the hypothesis, the SC-IS D scores were significantly lower and Q correlations were higher for the maximized pool. This, Cowen felt, gave an indication that Q-sort instruments could be purged of the SD factor by judicious use of adjectives.

Self-Evaluation and Social Desirability

J. Hand (1964) noticed another effect SD had on the validity of inventory scores.

> Various writers have been concerned with a potentially suppressive effect of SD upon the validity of inventory scores (Cronbach, 1946; Fricke, 1956). The positive correlation . . . between SD and inventory scores and the positive correlations between SD and the non-inventory variables suggest that, if such inventories were correlated positively with the non-inventory variables, then the elimination of SD from the inventories would diminish the validity [Hand, 1964:911].

To test this hypothesis, Hand administered a variation of the Guilford-Zimmerman Temperament Survey to two groups, one under self-evaluative conditions (the appraisal group) and the other non-evaluative (the research group). As predicted, the apprisal group attributed more of the socially desirable qualities to themselves and refused to attribute less socially undesirable qualities to themselves. In other words, the standard score for desirable items was higher, and the standard score for undesirable variables was lower for the apprisal group. This led Hand to summarize, "Apparently the effects of SD

can be suppressing or enhancing depending upon the nature of correlations between the relevant variables [Hand, 1964:911]."

Cowan, Budin, and Budin (1964) investigated the relationship between self-evaluative techniques of personality investigation and social desirability. They hypothesized that as the SD scale value between an adjective pair became more obvious, the correlation between SD and self-endorsement (SE) would increase. The main hypothesis was that self-endorsement was a confounding factor in measurement of social desirability. Instruments were devised that contained items with 0, 0.33, 0.67, 1.17 scale differences between adjective pairs. Results are shown in Table 2.3 below.

TABLE 2.3

INTERCORRELATIONS BETWEEN SD AND SE FOR FOUR TEST FORMS

Test form	r	p	Z
0	.18	ns	.181
33	.52	.01	.577
67	.58	.01	.663
117	.64	.01	.758

Source: Cowen, Budin, and Budin, 1964

Correlations between SD and SE show a distinct trend for endorsement of a trait as it becomes more socially desirable. Cowen felt this confirmed his earlier study (Cowen and others, 1960). He felt the nonsignificant correlation between self-endorsement and pairing of equally desirable items on an inventory was the key to eliminating the confounding effects of SD factors in personality assessment.

Evaluation of Others

In 1959, continuing his investigation of SD effects, Edwards conducted an experiment to determine if social desirability bias extended to the rating of others. He hypothesized that results would be similar to those found in self-descriptions. A total of 1067 descriptions of others were obtained using the 128-item Interpersonal Check List developed by Leary. The social desirability scale value had been obtained in a previous study (Edwards, 1957). Subjects were divided into three groups; one group was to think of someone they liked most, another the person they disliked most, and the third group was to think of five people they neither liked nor disliked, but five people who's behavior they could describe.

Results were rather mixed, Edwards found high correlations between the SD value of an item and the probability it would be attributed to someone liked. Correlation for the group describing the most disliked

person were in the expected direction (attributing fewer socially desirable and more socially undesirable attributes to the disliked person) but were not of the magnitude obtained under other directions (Edwards, 1959). Summing the results, Edwards concluded:

> Knowing the social desirability scale value of an item, one can predict quite well the probability that the characteristic will be attributed to someone liked, whereas the corresponding prediction for a disliked person would be quite poor and subject to considerable error [Edwards, 1959:435].

The implications of this particular study are far reaching and, as other authors will contend, have a direct impact on organizational assessment instruments relying on subjective ratings of others.

ACQUIESCENCE AND SOCIAL DESIRABILITY

Several studies were designed to distinguish between two closely related response styles — acquiescence and social desirability. Acquiescence is the tendency for an individual to answer in a positive manner on personality instruments, or as Hanley (1957) defined it; "positive malingering". Hanley was an early investigator of the problem and devised a method to control for acquiescence when testing for social desirability. His study is described later in this chapter. Jackson and Messick (1961) developed five new scales to evaluate the respective contributions of consistent responses to item content,

and the determinants of acquiescence and desirability. The new scales were used with the MMPI and were designed to measure tendencies to endorse; very desirable, somewhat desirable, neutral, somewhat undesirable, and very undesirable items repectively. Results, after administration to 201 prison inmates, were ". . . intercorrelated, factor analyzed, and rotated analytically to orthogonal simple structure [Jackson and Messick, 1961:788]." The five desirable scales correlated with each other in a manner predictable from knowledge of the item desirability values of the scales. Two large orthogonal factors were clearly identifiable as acquiescence and social desirability. Implications of their study suggest a revision of MMPI scoring methods, and the importance of multidimensionality analysis when assessing item similarities. Stricker (1963) hypothesized easy-to-read or moderate items elicit acquiescence (Acq). This study followed closely the lines Hanley (1957) took in his evaluations; the difference being, Stricker felt Hanley measured Acq with his neutral statements, not SD.

Soloman and Klein (1963) seeking to determine the relationship of Acq and SD in the Overall Agreement Score (OAS; Couch and Keniston, 1960) found that the OAS contained socially undersirable elements and also what they called "naysaying" or negative Acq. Soloman and Klein maintain though that Acq and SD factors are

orthogonal and do not necessarily associate with each other. In 1964 Diers, a student of A. L. Edwards, sought to dispell the doubts raised in the debate over whether SD or Acq was being measured by the SD scale (Diers, 1964). She hypothesized that Acq could be controlled (as had Bass, 1956; Fricke, 1956; Jackson and Messick, 1958; Wiggins, 1959) by balancing scales for True-False keying. Additionally, she believed that if all items are equally subject to acquiescence, the balanced keying would cancel the effects of this bias. She administered balanced, socially desirable scales to 227 subjects and found that only in cases where Edwards' SD hypothesis would predict positive (socially desirable) or negative (socially undesirable) correlation were her hypotheses confirmed. In cases where social desirability predictions were zero, the Acq hypothesis was confirmed. This upheld the predictions made by Stricker (1963).

INSTRUMENT DEVELOPMENT

Three approaches have been used to control social desirability in personality inventories. In one method, Hanley (1957) used an instrument which contained socially neutral items. Another method involves the use of a scale such as the Social Desirability Scale (SD; Edwards, 1957), Marlowe-Crowne Social Desirability Scale (M-C SD; Crowne and Marlowe, 1960), or the Jackson-Messick Scale

(JMS; Jackson and Messick, 1961) scales which can be used to correct the scores obtained on other inventories for this tendency. A third approach is through the use of what is often called a forced-choice inventory (Edwards, 1957).

Neutral Instruments

Hanley conducted a study to determine if the Edwards Personal Preference Schedule (EPPS) truly eliminated the effects of SD. He felt that the desirability of a statement and its endorsement should not be related. Edwards used statistically deviant items on his EPPS; items either extremely high or extremely low on the desirability continuum. High scores indicated a defensive person; low scores indicated a plus-getter. The meaning of a median score was unclear. Tendencies of honest subjects could not be determined accurately.

> In the hypothetically honest sample [honest subjects] the scale ought to have zero reliability ie., the items should not correlate with one another. In a sample of defensive and plus-getting subjects on the other hand, the internal consistency of the scale should be large, ... In a mixed group with the majority of subjects honest, the internal consistency of the test will be smaller than that usually required . . . [Hanley, 1957:392].

Hanley chose statements with median values (not desirable, not undesirable) from the MMPI. An instrument, keyed for agreement with desirable and rejection of undesirable items, was prepared (called Ex) and administered to one

hundred subjects. Correlation obtained was similar to normative data previously gathered by Meehl and Hathaway (1946), but lower than predicted by other SD instruments. Hanley felt this indicated the ability of his instrument to measure accurately both plus-getters and defensive subjects. To validate the results of this study, he compaired correlations of Ex and the K scale (Correction Score) to nine other MMPI scales. He explained that since the K scale had been validated by many other researchers, a favorable comparison would indirectly validate his scale. This comparison is contained in Table 2.4 and purportedly validates his scale. In additional tests he corrected the instrument for Acq bias by balancing true and false keyed responses, and conducted further tests. The results of which (it is claimed) indicated that not only was social desirability a strong confounding element but that both defensiveness or its converse, plus-getting, and Acq contribute heavily to the variance of the diagnostic measures of the MMPI.

TABLE 2.4

RAW SCORE CORRELATIONS OF THE EXPERIMENTAL SCALE (Ex), AND K WITH MMPI SCALES[a]

	Scale								
Scale[b]	F	Hs	D	Hy	Pd	Pa	Pt	Sc	Ma
Ex	-.37	-.44	-.45	.00	-.40	.09	-.65	-.56	-.35
K	-.36	-.34	-.28	.15	-.24	.07	-.69	-.58	-.40

[a] N = 100; an r of .20 is significant at the .05 level.
[b] Explanation of scales is contained in Appendix E.

Source: Hanley, 1957

Scales

The team of Crowne and Marlowe (1960) attacked the Edwards SD scale as capable of measuring only statistically deviant individuals. This comes from the fact that items in the Edwards SD scale were drawn from various MMPI scales and submitted to judges who categorized them as either socially desirable or socially undesirable. Only those items on which the judges had unanimous agreement were included in the scale. It seems clear that the items would of necessity, have extreme social desirability scale positions. In other words, they would be statistically deviant (Crowne and Marlowe, 1960). Crowne and Marlowe felt the items on the scale should also be criticized because of their pathological implications. When this pathological scale is applied to healthy college students, the meaning of high SD scores is not clear. If subjects

> . . . deny, for example, that their sleep is fitful and disturbed (item 6) [on the Edwards SD scale] . . . it cannot be determined whether these responses are attributed to social desirability or to a genuine abscence of such symptoms [Crowne and Marlowe, 1960:394].

The Crowne-Marlowe scale was then constructed of items that could be either culturally approved or disapproved yet free of pathological or abnormal implications. They hypothesized that if these criteria were used, the resulting instrument would more accurately measure the need of

a subject to respond in culturally sanctioned ways. Crowne and Marlowe report that they consulted a number of other personality inventories, looking for questions that would meet their criteria. A set of fifty items was composed and submitted to ten judges who were instructed to score each item in a socially desirable direction, using true and false response categories. Unanimous agreement was obtained on thirty-six items and ninety percent agreement on eleven additional items. These forty-seven constituted a preliminary form of the Marlowe-Crowne Social Desirability Scale (M-C SDS).

Thirty-nine subjects were administered the M-C SDS, Edwards SDS, and the MMPI. Internal consistancy of the M-C SDS was found to be quite high. Correlation was calculated between the M-C SDS and seventeen MMPI scales as shown in Table 2.5 on the following page. The authors called attention to the fact that there is a high correlation between the Edwards SDS and the Sc and Pt scales of the MMPI (a brief explanation of the scales is contained in Appendix E). "These two scales are considered to be among the most 'pathological' of the clinical scales [Crowne and Marlowe, 1960:352]." The magnitude of correlation between the M-C scale and the MMPI was considered by Crowne and Marlowe to be in accord with their definition of social desirability.

TABLE 2.5

CORRELATIONS BETWEEN THE SOCIAL DESIRABILITY SCALES AND VARIOUS MMPI SCALES FOR 37 MALES AND FEMALES

MMPI Scales	M-C SDS	Edwards SDS
K	.40*	.65**
L	.54**	.22
F	-.36*	-.61**
Hs	-.30	-.62**
D	-.27	-.72**
Hy	.15	.09
Pd	-.41**	-.73**
Pa	.21	-.02
Pt	-.30	-.80**
Sc	-.40*	-.77**
Ma[a]	-.24	-.42*
Pr[a]	-.27	-.58**
St[a]	.16	.14
Es	.17	.46**
MAS[b]	-.25	-.75**
A[b]	-.23	-.61**
R[b]	.28	.07

* Significant at the .05 level.
** Significant at the .01 level.
[a] N = 36.
[b] N = 34.

Source: Crowne-Marlowe, 1960

D. N. Jackson (1964) proposed another type of scale with which to measure social desirability. He noticed the consistent individual differences in the perception of desirability by judges rating the social desirability of a statement. This difference, he hypothesized, might be useful in drawing inferences about the personality of the rater. To test this hypothesis, 127 subjects were administered an instrument that measured conformity to a certain social criterion. Results

indicated that individual viewpoints regarding item desirability significantly predicted the conformity criterion. Because of the seeming objective nature of the judgment, the relative freedom from systematic response bias, and the low probability that a defensive reaction would be elicited, Jackson felt this method of personality assessment had great promise in detecting and correcting SD.

Forced Choice

Edwards (1957), after much experimentation, settled on a forced choice method of personality assessment. His Personality Preference Schedual (EPPS) required a subject to pick the more self-descriptive item in a pair of adjective statements. The hypothesis being: The more nearly equal you could make the statements in SD scale value, the more difficult would be the choice on the basis of SD alone. After a normative study involving 1,509 subjects, Edwards concluded ". . . when one pairs statements on the basis of social desirability scale values, the tendency of subjects to give socially desirable responses is minimized [Edwards, 1957:67]." Feldman and Corah (1960) conducted a study to refine the Edwards PPS. They confirmed Edwards' (1957) findings that SD was a pervasive influence in personality testing, but that carefully matched items (contrary to Edwards' hypothesis)

do not readily minimize SD. Edwards (1957) could account for " . . . only sixteen percent of the total variance . . . in terms of the differences in the scale values of the pairs of statements [Edwards, 1957:61]."

Ford (1964) describes another scale very similar to the Edwards PPS but with a slight variation. Ford agreed with the Crowne-Marlowe use of non-pathological statements and purified Edwards' scale of this "bias". He also corrected for an acquiescence bias by balancing the "true", "false" keying of the instrument. Because he eliminated the correlation between socially desirable questions and endorsement (to correct for acquiescence), he found a low correlation with the Edwards SD scale and a high correlation with the M-C SD scale.

Combinations

A more recently developed instrument is the RD16, devised by Schuessler, Hittle, and Cardascia. It combines the findings of Hanley (1957), Marlowe-Crowne (1960), and a personality measurement device presented by Jackson in his Personality Research Form Manual (1967). The authors of this instrument drew items from a wider pool of general attitude and opinion measures than previous tests and obtained SD scale values of each item based upon a large cross section of the population (1,522 subjects). These measures, it was

hoped, would give assurance that no item would differ in its SD value across any socially important subgroups. This instrument was developed to be used by sociologists primarily to correct attitude scores on responding desirably. It has been corrected for: Correlation among the socially desirable attitudes, analogous to Jackson (1967); and response acquiescence by using Jackson and Messick's (1961) acquiescing scale, all in combination with Marlowe-Crowne's (1960) Social Desirability Scale.

NEW DIRECTIONS

Social Desirability and Leadership Effectiveness

Schriesheim (1979) conducted a study of social desirability in a relatively untouched area of investigation. He wished to determine the effects of SD distortion in instruments used to test Fiedler's Contingency Theory of Leadership Effectiveness. Two studies were undertaken. The first consisted of eighty-nine managers who were administered the Crowne-Marlowe SD scale, Fiedler's Least Preferred Co-worker Scale, Fiedler's Bipolar Adjective Group Atmosphere Scale, and Fiedler's Position Power Scale. Results were correlated and only insignificant correlations between SD and Fiedler's three measures were obtained. He undertook a second experiment to determine how resistant the scales were

to SD. In the second study, sixteen additional managers were administered the same questionnaires, but half the subjects were told in private to "do well and be supportive and considerate of subordinants [Schriesheim, 1979: 92]." Schriesheim had hypothesized that the "coached" managers would do well and have a higher SD scale value than the control group. Results were in the predicted direction (e.g., "coached" managers had higher test scores) for all three Contingency Theory measures, but none were statistically significant. This led Schriesheim to state, "Apparently not all currently used research instruments are affected by social desirability, as had been suggested . . . [Schriesheim, 1979:93]."

Social Desirability and Organizational Climate

Golembrewski and Munzenrider (1973) reported the intervening effects social desirability had upon Likert's "Profile of Organizational Characteristics". This measure is often used to describe the interpersonal and intergroup work climate of an organization. The instrument's items each differentiate four systems of management along a continuum of twenty equal-appearing intervals (Likert, 1967). For every item, a brief descriptive statement represents each of the four managerial systems.

The curious effect they noticed was in the instrument's use as a postintervention measurement tool. Subjects whose preintervention scores fell in System 1-3 had post-scores which moved substantially toward System 4 after the OD intervention. Inexplicably, subjects providing System 4 responses in preintervention tests showed a distinct movement towards System 1. This movement is shown in Table 2.6.

TABLE 2.6

SUMMARY DATA FROM AN OD DESIGN, CLASSIFIED IN TERMS OF INITIAL SELF-REPORTS

	Preintervention Classification of Respondents into Likert Systems of Management			
System:	1	2	3	4
Average number of respondents	12	63	164	90
Mean Preintervention score*	3.1	8.1	12.8	17.2
Mean Postintervention score**	9.8	11.7	13.6	15.0
Mean Change score***	6.7	3.6	0.8	-2.2

* Using paired comparisons of the means of the four Likert systems on each of the 24 items, all 144 possible differences far surpass the .01 level of statistical significance on Duncan's Multiple-Range test.
** Using paired comparisons of the means of the four Likert systems on each of the 24 items, 127 of the 144 possible differences surpass the .05 level on Duncan's Multiple-Range test.
*** Using paired comparisons of the means of the four Likert systems on each of the 24 items, 132 of the 144 possible differences surpass the .05 level on Duncan's Multiple-Range test.

Source: Golembiewski and Munzenrider, 1973

The authors suggested that this movement could be caused by subjects " . . . who saw their organization life in unrealistically positive terms [Golembiewski and Munzenrider, 1973:35]." They felt that the OD intervention caused these individuals to see their organization more as it really was. To test this theory, they set up two broad hypotheses:

> 1. That SD scores will be highest for respondents initially reporting a System 4 pattern of management, and lowest for respondents reporting System 1, based on the proposition that the descriptive statements anchoring System 1.
>
> 2. That low SD scorers will tend to report greater movement toward System 4 comparing self-report after vs. before the OD intervention; and high SD scorers will show less movement toward System 4, or might even trend toward System 1 [Golembiewski and Munzenrider, 1973:536].

Using the data obtained from 167 salesmen who participated in an OD learning experience, they found that subjects with the highest SD scores did indeed initially tend to see their organization in more favorable terms than lower scorers. The total variance in Likert scores attributable to SD was found to be 7.5 percent.

When the same analysis was applied to postintervention scores, it was found that the effect of SD was much less than in preintervention scores. This effect, the authors contend, can be explained as the results of an impactful OD design. The intervention unavoidably highlighted for high SD scorers those darker organizational realities which they preferred not to see earlier.

Golembiewski and Munzenrider conclude in their 1975 reprint of the article:

> 'Social Desirability' effects seemed to contribute substantially to the variance in OD effects as measured by self-reports. Specification of differences such as those in SD will characterize the development of increasingly sensitive research designs, which may screen out the variables interfering in the measurement and evaluation of OD effects [Golembiewski and Munzenrider, 1975:331].

Social Desirability and Conflict Handling

Thomas and Kilman (1975) were impressed by the work of Golembiewski and Munzenrider (1973) previously mentioned. They comment that until that research effort, the social desirability factor had not recieved any attention in management literature. In their study they try to indicate the importance of social desirability in organizational research by focusing on conflict handling. The authors had 115 subjects rank five conflict statements from the most to the least typical as descriptions of their own behavior. These statements were taken from a system of interpersonal conflict-handling behavior, first presented by Blake and Mouton (1964). The subjects were then asked to rank twenty-five proverbs taken from the Lawrence-Lorsch instrument (Lawrence-Lorsch, 1967), and complete the conflict-handling instrument designed by Hall (1969).

The purpose of the study was to examine the possibility that subject's responses to these three instruments " . . . may represent simply a tendency to associate 'good' conflict behaviors with other 'good' variables in an individual's ratings [Thomas and Kilmann, 1975:743]." Specifically the study examined three things: 1) The social desirabilities of the items describing the five conflict-handling modes in each instrument (results shown below in Table 2.7);

TABLE 2.7

MEAN AND STANDARD DEVIATIONS OF SUBJECTS' AVERAGE SOCIAL DESIRABILITY RATINGS OF MODE ITEMS FOR THE THREE INSTRUMENTS (N = 29)

Conflict-Handling Modes	Instruments[a] Blake-Mouton	Lawrence-Lorsch	Hall
Competing (Forcing)	3.90 (4)[b] 1.76	4.61 (5) 1.03	4.84 (3) 0.58
Collaborating (Confrontation)	7.90 (1) 0.86	7.14 (1) 1.00	7.17 (1) 0.72
Compromising (Sharing)	7.38 (2) 0.94	5.45 (3) 0.88	5.68 (2) 0.51
Avoiding (Withdrawal)	3.76 (5) 1.85	5.35 (4) 0.84	4.07 (5) 0.73
Accommodating (Smoothing)	5.52 (3) 1.88	5.53 (2) 1.09	4.59 (4) 0.83

[a] For this analysis, individual data for the Lawrence-Lorsch and Hall instruments consisted of a subject's average rating of social desirability over the 5 or 12 items describing each mode. The Blake-Mouton instrument has only one item per mode.

[b] Numbers in parentheses are ranks of conflict mode means within instruments.

Source: Thomas and Kilmann, 1975

2) The relationship between those social desirability rankings and the subject's mean self-report scores on the conflict-handling modes (correlations shown below in Table 2.8); and finally, 3) The relationship between self-assessment of socially desirable qualities (correlations shown in Table 2.9 on the following page).

TABLE 2.8

CORRELATIONS BETWEEN MEAN SOCIAL DESIRABILITY RATINGS AND MEAN SELF-ASSESSMENT RATINGS FOR THE SET OF ITEMS REPRESENTING A GIVEN MODE

	Instruments	
Modes	Lawrence-Lorsch (N = 5 items/mode)	Hall (N = 12 items/mode)
Competing	.93**	.91***
Collaborating	.92*	.51*
Compromising	.71	.80***
Avoiding	.90*	.69**
Accommadating	.91*	.52*

*p < .05, one tail
**p < .01, one tail
***p < .001, one tail

Source: Thomas and Kilmann, 1975

TABLE 2.9

PEARSON CORRELATIONS OF TWO SOCIAL DESIRABILITY SCALES WITH INDICES OF THE SOCIAL DESIRABILITY OF SUBJECTS' SELF-RATINGS ON THE THREE CONFLICT INSTRUMENTS (N = 86)

	Social Desirability Scales	
Conflict Instruments	Edwards	Crowne-Marlowe
Blake-Mouton [a]	.28**	.26**
Lawrence-Lorsch	.27**	.23*
Hall	.42***	.14

[a] Since low ranks indicate high frequency on the Blake-Mouton items, a low index score indicates relatively socially desirable ratings. For the sake of comparability, the sighn of the Blake-Mouton correlations therefore have been reversed in this table.

*p < .05, one tail
**p < .01, one tail
***p < .001, one tail

Source: Thomas and Kilmann, 1975

As evidenced by Table 2.7, some conflict handling modes were found to be more socially desirable than others. The Blake-Mouton instrument was not included in the analysis shown in Table 2.8 because it only contains one item per conflict-handling mode. Correlations were all in the predicted direction (positive) and nine of the ten attained significance at the .05 level or better. The mean self-assessment scores for all three instruments were found to vary closely with the social desirabilities of the five modes. The Pearson correlations were .94 for the Blake-Mouton instrument ($p < .05$),

.96 for the Lawrence-Lorsch ($p < .01$), and .98 for the Hall ($p < .01$). The correlations indicate that on the average, one could account for over ninety percent of the variation in Thomas and Kilmann's sample, solely in terms of the social desirability of the questionnaire items used to rate the conflict-handling modes.

Of the original 115 subjects, eighty-six also completed the Edwards Social Desirability Scale (Edwards, 1953) and the Crowne-Marlowe Social Desirability Scale (Crowne and Marlowe, 1964). An individual's self-ratings on the three conflict-handling instruments were standardized and multiplied by the social desirabilities of conflict items. This gave an index of the extent to which a subject gave relatively high endorsements to the more desirable conflict items. Correlations (shown in Table 2.9) between the SD scales and the calculated indices were all in the predicted direction and five of the six were statistically significant. Thus, the social desirability of subjects' self-ratings on conflict-handling behavior had some tendency to vary with self-ratings or other desirable characteristics (Thomas and Killmann, 1975).

Thomas and Kilmann conclude by reminding future researchers in the OD field that although not all instruments may be contaminated by the effects of social desirability (Schriesheim, 1979), that many are. They suggest

researchers discount high ratings for socially desirable variables. They also underscore the desirability of obtaining observational or other objective measures where possible to reduce the intrusion of social desirability into the data.

Conclusion

This literature review has covered some of the more significant articles related to social desirability since 1953. It has been a long span of time and much has been learned about the tendency of subjects to respond in a socially desirable manner. This chapter followed the development of the SD construct, its differentiation from acquiescence, the development of several methods of measuring or correcting it, and the initial investigations of social desirability's effects upon organizational assessment. There is still doubt (as with any theory concerning human behavior) whether all the instruments "truly measure a trait to 'respond desirably', or indeed whether any such general trait or propensity exists [Schuessler, Hittle and Cardascia, 1978:234]."

Most experts agree that there is a social desirability factor that contributes confusion to most personality measurement instruments, and new evidence points to the same confounding effects upon organizational measurement methods. In the beginning, this factor

seemed to invalidate personality inventories, but there now seems to be hope for the social scientist. New instruments such as RD16 (Schuessler, Hittle, and Cardascia, 1978) have been corrected for biasing factors that plagued previous scales, and new research (Schriesheim, 1979) indicates that not all instruments are "riddled" with the SD factor. In relevant literature about social desirability, it is clear that one area in which little research has been done is in the field of organizational psychology.

The intervening effects of social desirability have been shown to (strongly) influence self-evaluations, and evaluations of others (Edwards, 1953; Edwards, 1959). It has also been shown to influence an individual's perception of his environment (Golembiewski and Munzenrider, 1973). The presence of this variable in organizational assessment instruments could invalidate a great deal of the organizational data gathered to date. Isolation of this factor (social desirability bias) and its effects upon a particular organizational assessment tool (the Organizational Assessment Package, OAP) will be the primary focus of ensuing chapters.

CHAPTER III

METHODOLOGY

INTRODUCTION

This chapter presents the methods of analysis used to determine if social desirability response bias has any effects upon the OAP, and whether there is an existing social desirability index inherent within the present OAP. The proceedure basically involved three steps — 1) determining the degree of association between social desirability index scores and elements of the OAP, 2) assessing the effects of social desirability response bias upon OAP scores, and 3) developing predictors of social desirability response bias from elements in the OAP.

DATA

Source

In order to accurately analyze the effects of social desirability upon the OAP, two different instruments were used — the RD16 developed by Schuessler, Hittle, and Cardascia (1978) and the Crowne-Marlowe Social Desirability Scale (Marlowe-Crowne, 1960). Both instruments are contained in Appendix B. The scales on both instru-

ments were true-false scales. Individuals were asked to mark the answer sheet provided with the response that best answered the question as it applied to them. The answer sheets were scored in the direction shown in Appendix B. These instruments were administered jointly with the OAP. No special instructions were given other than guaranteeing individual anonymity. If an individual questioned the personal nature of the questions, he was told they were to be used for improvement of the OAP.

Population and Sample

The population to which research findings will be generalized is the civilian workforce in the logistics community.* The sample was comprised of 129 individuals working in a Department of the Air Force major command headquarters. The research was conducted in conjunction with an ongoing organizational intervention and was administered as a post-test nine months after the preintervention OAP was administered. Unfortunately, because anonymity was guaranteed, there was no way to compare, on an individual basis, the preintervention OAP scores with the postintervention OAP scores and the associated social

* While there are limitations associated with this sample (as described in section Sample Problems) executive personnel of the surveyed department feel confident in the sample's representativeness.

desirability scale values. This problem is more fully explored in a following section titled Sample Problems.

Demographics of Sample. Rank (grade), sex, and age were collected on participants and are summarized in Table 3.1. It should be noted that the sample was primarily composed of civil servants between the grades of GS-11 and GS-13.

TABLE 3.1

COMPOSITION OF SURVEY RESPONDENTS

	Grade	Qty
Officer	03	3
	04	3
	05	2
Enlisted	E7	2
Civilian	GS2	2
	GS3	2
	GS4	3
	GS5	4
	GS6	1
	GS7	2
	GS9	2
	GS11	6
	GS12	71
	GS13	21
	GS14	3
	GS15	2
	total	129

Sex

M	F
99	30

Age

Under 30 - 20
30 to 40 - 35
Over 40 - 74

Participation. Participation was on a voluntary basis. Survey administration was scheduled four times a day for three days during working hours to afford the most convenience for participants. Response during the first two days was minimal and on the third day the department

head intervened by strongly encouraging departmental participation. Total time allotted per administration was an hour and a half, but rarely did an individual take more than an hour. There was no debriefing held. If a subject had questions concerning the survey instruments, they were answered on an individual basis after administration.

Sample Problems

The first problem with the sample stems from its composition. The Deputy Director of the department surveyed designated which sections were to be treatment groups and which were to be control groups in the intervention. No criteria were established for selection of these groups. Informal interviews with subjects after administration of the OAP indicated that in treatment groups the intervention made little if any change in organizational behavior. For the purpose of this investigation, no differientiation will be made between these groups for that reason.

Bias. It is recognized that this sample may suffer a systematic bias in that no overt attempt was made to make it random. However, the sample population selected was characterized as "typical" by the Deputy Director of the parent population. Out of the sample population the

instruments were administered to random "volunteers". Unfortunately, because of constraints on the consultant, this bias could not be controled.

Bias is a hazard that often occurs in social research. One method of checking the unusual bias (or deviation from the means) is to compare the sample to known values*. This was done and the results are shown in Table 3.2. Only those responses that differed significantly from the norms shown in Appendix D are included in the table. Those responses so identified were discarded for purposes of this analysis.

TABLE 3.2

DEVIANT SAMPLE SCORES

Variable	Sample Mean	Normative Mean	Normative Std.Dev.
258	2.320	4.778	1.480

Timing. Assessing the effects of social desirability bias in organizational surveys is a new thrust in the field of organizational behavior. This was brought out in Chapter II, particularly in the investigation done by Golembiewski and Munzenrider (1975). They found that

* The known values are normative data developed by LMDC from the 100,000 responses now on record.

the variances in postintervention scores were substantially less than in the case of preintervention scores for likert self-reports — but this is the case only in the event of an OD design strategy that actually had an impact (e.g., caused a change) on the organization (Golembiewski and Munzenrider, 1975). Interviews with those responding to the survey indicated that the intervention was not impactful (this was confirmed in research done by Captain J. Fiorini in an unpublished masters thesis LSSR 55-81). Therefore, the fact that postintervention scores were used should have little or no effect upon resultant responses to the OAP and the SD indices administered to this sample.

Advantages of the Sample

The choice of this sample was due, in part, to its convenience and proximity. Other advantages inherent in the administration of a field survey should not be lightly dismissed. A deficiency found in many of the early laboratory experiments dealing with social desirability response bias was that subjects were college freshman and sophomores (usually psychology students) who, due to differences in maturity and exposure, may have had radically different social attitudes than more mature workers whom they purportedly represent (Alderfer, Kaplan, and Smith, 1974). Little field research has been done

on the subject of organizational sensing instruments, using actual subjects, because of the costly nature of disrupting an ongoing production process. It was felt because of their membership in an Air Force organization, the subjects of this sample come closest to being representative of a typical Air Force civilian workforce.

VARIABLES

RD16 and Marlowe-Crowne Social Desirability Scale (MCSD)

The RD16 and the Marlowe-Crowne Social Desirability Scale were selected as indicators of individual SD response bias. Although continuous scale indicators, they were dichotomized to better discern differences in sample OAP responses. The methods used to dichotomize sample responses are covered in later section.

OAP Variables

All variables shown in Appendix D were used in the analysis an independent variables in the determination of linearity and regression lines for prediction of SD indices.

Selected Variables

Two areas in organizational testing emerge out of the literature review as possibly being influenced by social desirability response bias; organizational ratings,

(Golembiewski and Munzenrider, 1973) and supervisory ratings (Edwards, 1959). These two areas are measured in the OAP via several factor scores. To facilitate their investigation, all supervisory ratings were combined and averaged, as were organizational ratings. The formulas for these two factors are shown in Appendix C.

One additional area was included for analysis, factor 808, the Organizational Job Inventory. This factor measures the need for job enrichment within the unit. The cost of job enrichment often is quite high and may require extensive organizational shifts in personnel and machinery. Because of these costs, it was felt that factor 808's susceptibility to response bias should also be investigated since the degree of job enrichment needed may be based on this variable.

Variable Measurement

It is realized that by aggregating the factors to obtain single supervisory and organizational ratings some information is lost, but it must also be realized that a broader picture may be gained when examining differences in the ratings of supervisors or organizations by high and low SD index raters.

ANALYSIS DESIGN

Overview

As mentioned earlier, research was conducted via a three step process. The first step was an investigation to determine if a relationship existed between variables or factors in the OAP and social desirability index scores. This step was the starting point for further research. The second step, assessing what effect social desirability response bias may have on OAP scores, was designed to test Hypothesis 1 and Hypothesis 2. The third step, determining if there were social desirability predictors inherent in the OAP, was designed to test Hypothesis 3. The general flow of the analysis is contained in Figure 3.1. This figure is intended to give the reader a better appreciation for the flow of this investigation. It is a broad picture and is intended as a guide only. As Chapter III develops and analysis is discussed, the reader must realize that additional investigations (of a lessor nature) will also be treated within the broad framework of this design.

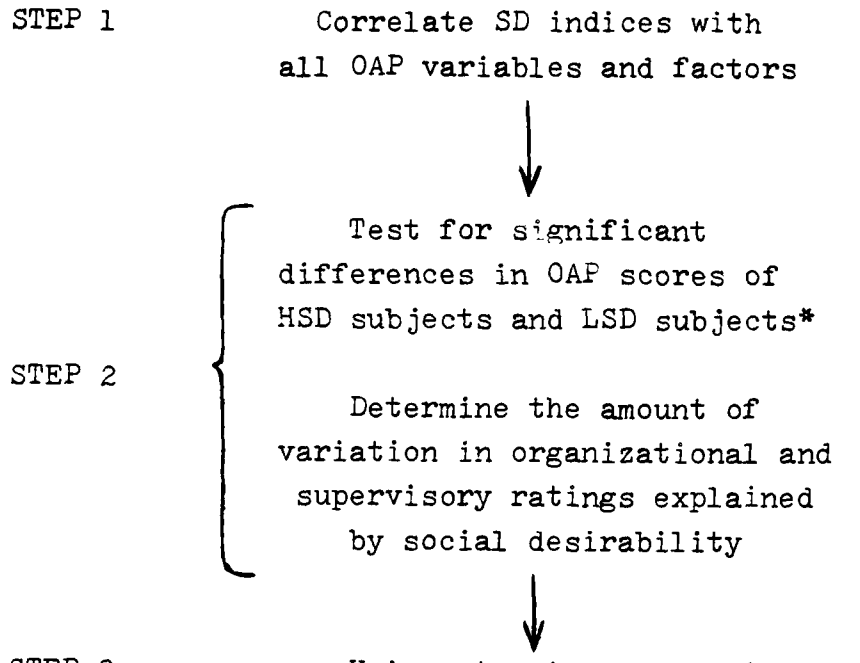

Fig. 3.1. Overview of Analysis

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* HSD and LSD are defined in this section under Sample Division.

Sample Division

Subjects initially were divided into two catagories in a fashion simialr to the Edwards' study (1959). The first group was comprised of subjects exhibiting a high degree of social desirability bias (HSD), as indicated by both of the social desirability indices. The second group was comprised of subjects exhibiting a low social desirability bias (LSD) as indicated by both indices. Determination of these groupings was based upon the median score calclated for each social desirability index using the responses provided by the sample population. Subjects scoring above both medians were designated as HSD. This division resulted in a group of fifty-one HSD, a group of thirty-one LSD subjects and forty-seven subjects who were not examined. Unlike the Edwards study (1959), data was not further divided by sex. The results of that study indicated little difference in response scores between males and females (Edwards, 1959:435).

METHODS OF DATA ANALYSIS

Three major statistical methods were used to test the hypotheses. In order to facilitate understanding of the way in which techniques were used, it is appropriate that a brief summary of each be given.

Correlation

The first method used was designed to evaluate what (if any) relationship exists between social desirability index scores and variables or factors contained in the OAP. This method, called bivariate correlation, provides a single number which indicates the degree to which variation in one variable or factor is related to variation in another. The correlation was calculated using the PEARSON CORR subprogram contained in the Statistical Package for the Social Sciences (SPSS; Nie and others, 1975). The Pearson correlation coefficient (r) measures the strength of relationship between two interval-level variables.

Significance of each coefficient calculated was derived from the use of Student's t with n - 2 degrees of freedom. The significance of each correlation was evaluated at the $\alpha = 0.05$ level. In other words, if the calculated significance was 0.05 or below, the variable was retained for further analysis. The costs associated with this statistical test were not felt to be overly great. Therefore, a larger margin for error was allowed to give a higher probability of finding enough variables to use in later regression analysis. A two tailed test for significance was performed since previous research has indicated that social desirability

bias is the tendency to deny socially undesirable and profess socially desirable qualities (Hand, 1964; Edwards, 1957). In other words, the probability of endorsement is related to the SD value of the particular question or variable. Formally stated, the hypothesis test used in this testing sequence is:

$$H_o : \rho = 0$$

Limitations. This type of research is often called a correlational study (Stone, 1978). It begins with data being gathered on the study's independent and dependent variables. This data is then used to assess the strength of association, or the predictibility of one from the other.

Unfortunately correlation alone cannot be used to support arguments of causality; that is, just because two variables can be shown to be related to one another, the argument that one causes the other is not justified. Therefore, other methods of statistical analysis were employed to determine linear trends or sample differences and to test their significance. These methods will be discussed next.

Mean Difference Testing by Analysis of Variance (ANOVA)

The second statistical test used in the analysis of sample data was mean difference testing by the ANOVA technique. This test is contained in the SPSS subprogram, BREAKDOWN. This subprogram calculates and prints the sums, means, standard deviations, and variances of a dependent variable among subgroups of the cases in the file. Testing was conducted in three areas — supervisory ratings, organizational ratings and overall OAP scores (formulas for these three ratings are shown in Appendix C). Each area was compared by dividing respondents into high and low catagories as explained in the Overview portion of this Chapter.

Testing was done through analysis of variance. One-way analysis of variance provides a method to statistically test whether the means of subsamples, into which the sample data are broken, are significantly different. This test may formally be shown as:

$$H_o : \mu_1 = \mu_2$$

If the means are not found to be significantly different, the null hypothesis may not be rejected. This indicates that the sample means were equal and differences may be attributed to sampling error. Conversly, if the sample means were found to be dissimilar, the null hypothesis

may be rejected. Testing was done by examination of the computed F ratio significance.

The level of significance selected for testing sample data was 0.01. This value provides a high level of discrimination yet allows a sufficiently wide margin for hypothesis validation. It means there is one chance in one hundred of making a Type I error (or rejecting the null hypothesis when it should not be rejected). The costs associated with rejection of the null hypothesis were estimated by be quite high, so the significance level selected must correspondingly be high.

Another output of the BREAKDOWN subprogram was the eta-squared statistic. It was calculated by dividing the between-group sum of squares by the total sum of squares. This statistic is a measure of the proportion of variance in the dependent variable that is explained by the independent variable.

Regression

The second major statistical analysis consisted of a multiple linear regression. Regression is used to determine the relationship between a dependent of criterion variable and a set of independent or predictor variables. The object here was to determine whether the degree of a subject's social desirability bias (dependent variable) could be predicted using factors contained in

the OAP (independent variables). The SPSS multiple linear regression subprogram REGRESSION was used because of its ability to control the inclusion of independent variables in the regression equation through stepwise selection proceedures (Nie and others, 1975). The least-squares method was used for calculating the regression line.

The coefficient of determination is the method used to measure the efficiency of the regression line. If the regression line is a "good" fit, explaining a large percentage of the variation between the dependent and independent variables, then R^2 will approach one.

SPSS provides two means for entering independent variables into the regression equation; either in a predetermined order or by forward stepwise inclusion. Entering variables in a predetermined order is used when it is thought there is a definite causal ordering among them. No causal ordering among variables in the OAP was assumed, and forward stepwise inclusion was used for analysis of the sample data.

Using the stepwise inclusion option of SPSS, the subprogram REGRESSION picks a variable that explains the greatest amount of variance (unexplained by the variables already in the equation) entering the equation at each step. The independent variable chosen for entry is the

one which has the largest squared partial correlation coefficient with the dependent variable. The stepwise option enters the independent variables in single steps from best to worst, provided the variable meets an established statistical criteria. The criteria used in this analysis are the F ratio and the tolerance, T. The significance level for F was selected as $\alpha = 0.01$.

The F ratio is computed as a test for the significance of a regression coefficient. The F ratio for a given variable is the value obtained if that variable were brought in on the next step. The test on the statistical significance of the presence of an independent variable is conducted in isolation without testing any other independent variable in that step.

The second condition to be met is the tolerance (T). The tolerance of an independent variable being considered for inclusion is the proportion of the variance of that variable not explained by the independent variables already in the equation (Nie and others, 1975). If the tolerance criterion is not met, the independent variable does not enter the equation. T has a possible range from 0 to+1. A tolerance of 0 would indicate that a given variable is a perfect linear combination of the other independent variables. A tolerance of 1 would indicate that the variable is uncorrelated with the other

independent variables. Intermediate values such as 0.01 indicate that (in this case) one percent of the variance of a potential independent variable is unexplained by the variables already entered. The criterion value chosen for T (T = 0.50) helped assure that multicollinearity was held to a minimum. Variables that exhibit multicollinearity reduce the ability to account for the explanatory power of the particular independent variable in the model.

Formally, we are testing the hypothesis;

$$H_o : B_1 = B_2 = \ldots = B_k = 0$$

where: B_k is the coefficient of the linear terms.
k is the quantity of coefficient terms.

That is; all regression coefficients are equal to zero in the popilation. The alternative hypothesis;

$$H_1 : B_i \neq 0$$

for one or more i, may be accepted if the computed F ratio exhibits a significance level greater than the criterion significance level of 0.01.

CHAPTER IV

RESULTS

INTRODUCTION

The first objective of this research effort was to determine whether existing items in the OAP are influenced by the effects of SD response bias. Achieving this objective was done by an examination of mean differences and a determination of how much variance in OAP scores could be explained by SD response bias.

The second objective was to determine whether a respondent's SD response bias could be predicted by his responses to questions in the existing OAP. Multiple linear regression was performed for both dependent variables (MCSD, RD16) in the hope of establishing a predictor equation to fulfill this objective. These analyses and their results are presented in detail in this chapter.

ANALYSIS

Objective 1

Objective one was completed by testing two hypotheses concerning the differences in means and variances of OAP scores in relation to an individual's SD response bias.

Hypothesis 1. Hypothesis one, developed in the first Chapter, is presented again below:

> OAP scores will be higher for subjects scoring high on the SD indices, than respective scores for subjects scoring low on the indices.

This hypothesis was tested through the use of three related research questions. For the first research question;

> Are the Organizational Job Inventory scores of subjects with a high SD response bias significantly higher than those with a low SD response bias?

factor scores for individuals exhibiting a high social desirability response bias (HSD) were compaired with factor scores for individuals exhibiting a low social desirability response bias (LSD). This division of the sample is explained in Chapter III. Table 4.1 shows the results of this comparison. This table shows insufficient statistical significance (at $\alpha = 0.05$) in the difference between individuals categorized as HSD and those categorized as LSD. Means for the respective categories did lie in the expected direction — LSD subjects had lower average scores than did HSD subjects. This prompted additional effort to improve the significance level of the comparison. Respondents were further divided into quartile groupings. Individuals with SD index scores in the upper quartile were designated as HHSD

TABLE 4.1

ANALYSIS OF ORGAINZATIONAL JOB INVENTORY SCORES

	Mean	Std.Dev.	N
Entire Population	67.890	13.271	82
LSD	64.548	13.223	31
HSD	69.922	13.011	51

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Between Groups	1	556.65	556.65	3.248	0.075
Within Groups	80	13709.36	171.37		
Total	81	14266.01	728.02		

(or highest HSD), those in the lowest quartile were designated as LLSD (or lowest LSD). Individual responses in the middle two quartiles were discarded. This procedure was undertaken to eliminate individuals in the middle, grey area; i.e., those who could conceivably be either LSD or HSD. The quartile division improved significance to the $\alpha = 0.001$ level. Those who truly have a high SD response bias did score higher on the OJI than their counterparts who truly have a low SD response bias.

TABLE 4.2

QUARTILE ANALYSIS OF ORGANIZATIONAL JOB INVENTORY SCORES

	Mean	Std.Dev.	N
Entire Population	70.280	13.186	25
LLSD	61.833	12.734	12
HHSD	78.077	7.868	13

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Between Groups	1	1646.45	1646.45	14.988	0.001
Within Groups	23	2526.59	109.85		
Total	24	4173.04	1756.30		

The second research question is as follows:

Do subjects with high SD response bias rate their supervisors significantly higher than subjects with a low SD response bias?

This question was answered in the same manner question one was. Individuals were initially broked into the HSD and LSD categories, and comparisons were made on supervisory ratings (formulas may be found for supervisory ratings in Appendix C). These categories were further subdivided into quartiles and comparisons were done on the upper and lower quartiles. Results of this analysis are contained in Table 4.3.

TABLE 4.3

BREAKDOWN OF SUPERVISORY RATINGS

MEDIAN BREAK	Mean	Std.Dev.	N
Entire Population	4.575	1.592	82
LSD	4.482	1.534	31
HSD	4.632	1.638	51

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Between Groups	1	0.44	0.44	0.171	0.681
Within Groups	80	204.74	2.56		
Total	81	205.18	3.00		

QUARTILE BREAK	Mean	Std.Dev.	N
Entire Population	4.815	1.10	25
LLSD	4.630	1.305	12
HHSD	4.986	0.892	13

TABLE 4.3 — CONTINUED

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Between Groups	1	0.79	0.79	0.641	0.431
Within Groups	23	28.27	1.23		
Total	24	29.06	2.02		

The analysis of supervisory ratings both for the median breakdown (HSD, LSD) and the quartile breakdown (HHSD, LLSD) show no statistically significant differences between the high and low categories of SD response bias. A note must be made that although not significantly different, the ratings do lie in the expected directions.

The final test of hypothesis one answered the following research question:

> Do subjects with high SD response bias rate their organization significantly higher than subjects with a lower response bias?

Analysis was conducted in a two phase process as before. Comparisons were made between HSD and LSD categories, and between HHSD and LLSD categories. Results are shown in Table 4.4 on the following page.

TABLE 4.4

BREAKDOWN OF ORGANIZATIONAL RATINGS

MEDIAN BREAK	Mean	Std.Dev.	N
Entire Population	4.872	1.110	82
LSD	4.456	1.070	31
HSD	5.125	1.066	51

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Between Groups	1	8.63	8.63	7.577	0.007
Within Groups	80	91.11	1.14		
Total	81	99.74	9.77		

QUARTILE BREAK	Mean	Std.Dev.	N
Entire Population	4.749	1.102	25
LLSD	4.167	1.225	12
HHSD	5.285	0.635	13

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Between Groups	1	7.80	7.80	8.408	0.008
Within Groups	23	21.34	0.93		
Total	24	29.14	8.73		

This analysis showed that there was a significant difference between HSD and LSD categories even without quartile division. Organizational ratings seem to be affected by the degree of SD response bias. Those who have a high SD response bias rate their organization higher than those with a low SD response bias.

Summary. Data provided a statistical basis for rejecting the null hypothesis;

$$H_o : \mu_1 = \mu_2$$

for two of the three research questions.

Hypothesis 2. Hypothesis two states:

> A significant amount of variance in the factor scores for the OJI, for organizational ratings, and for supervisory ratings can be explained by an individual's degree of SD response bias.

This hypothesis was tested with one research question:

> How much variation in the OJI factor scores, organizational ratings, and supervisory ratings is accounted for by SD response bias?

This question was answered using the eta-squared statistic. Table 4.5 gives the results of this calculation for the upper and lower quartile comparisons in the three areas of interest.

TABLE 4.5

EXPLAINED VARIANCE

Item	% Variance Explained by SD
OJI Factor	39.45
Organizational Ratings	26.77
Supervisory Ratings	2.71

It was felt by the author that a significant proportion of total variance was explained by SD response bias in two areas, factor scores for the OJI and for organizational ratings.

Summary. Hypothesis two was confirmed in two areas of research through the analysis of sample data.

Objective 2

An attempt was made to accomplish the second objective by testing the third and final hypothesis developed in Chapter I.

Hypothesis 3.

> The degree of SD response bias in a subject may be predicted by his responses to questions in the OAP.

Testing of this hypothesis began with the research question;

> Which factors or variables in the OAP correlate significantly with SD index scores?

Pearson correlation coefficients were calculated for all OAP variables (factors) and the two SD indices. Correlation coefficients were also calculated for the dichotomized index scores (the HSD category and LSD category). Table 4.6 shows those undichotomized coefficients with a significance level above 0.05. Table 4.7 contains coefficients for the dichotomized index scores with significance above 0.05.

Further testing of Hypothesis three answered the following research question:

> Are positive or negative predictors of SD response bias present within the OAP (e.g., can either high or low SD response be predicted)?

Variables first indentified in the correlation analysis (Table 4.6) as being linearly related to either the MCSD or RD16 were regressed as independt variables. The results of the regression are shown in Table 4.8. Both regression lines display a high degree of significance. Closer examination of the analysis for the MCSD Index shows that only ten percent of the sample can be explained through use of the equation and, although statistically significant, the regression equation has only one variable in it. This "poor fit" makes the equation unusable for predicting the MCSD score of an individual respondent. The regression equation for the RD16 score predicts more of the variance but still not

TABLE 4.6

SIGNIFICANT CORRELATIONS FOR MCSD AND RD16 SCORES (UNDICHOTOMIZED)

MCSD	V208	V217	V259	V260	V264	V265	V300	V301
	0.2447	0.2101	0.2035	0.2470	0.2439	0.1817	0.2571	0.1809
	V303	V304	V305	V308	V312	V313	V314	V315
	0.1859	0.1801	0.2231	0.2174	0.1925	0.2142	0.2864	0.1881
	V317	V318	V412	V710	V718	V820	V821	V822
	0.2443	0.1808	0.1783	0.2096	0.2502	0.2170	0.2079	0.1791
RD16	V006	V007	V009	V013	V208	V210	V214	V275
	0.1751	0.2706	-0.1756	-0.1841	0.1890	0.2470	0.1767	0.1731
	V249	V259	V264	V300	V718	V802	V806	
	0.2652	0.1781	0.1847	0.2429	0.2566	0.2194	0.1836	

RD16	MCSD	
	0.5211	

TABLE 4.7

SIGNIFICANT CORRELATIONS FOR HIGH AND LOW SD SCORES

Category: HSD

MCSD	V270	V234	V241	V276	V316	V436	V817	
	0.3619	0.3013	0.4441	0.2868	0.3854	0.2822	0.3262	
RD16	V003	V012	V202	V203	V271	V272	V209	V214
	0.3869	0.2954	0.3461	0.4003	0.3222	0.2824	0.3602	0.3320
	V215	V227	V239	V265	V801	V802	V804	V807
	0.3287	-0.3004	0.4411	0.2927	0.2983	0.3881	0.3400	0.2951
	V808	V809	V811	V812	V813	V825		
	0.3884	0.3715	0.3026	0.3528	0.3084	0.2852		
RD16	MCSD							
	(insignificant)							

Category: LSD

MCSD	V006	V226	V277	V718	V719	
	0.4365	0.3791	0.4316	0.4414	-0.3618	
RD16	V006	V206	V208	V277	V718	V719
	0.4370	0.3727	0.4567	0.4432	0.4377	-0.3676
RD16	MCSD					
	0.7801					

TABLE 4.8

SOCIAL DESIRABILITY PREDICTOR REGRESSION

For the Marlowe-Crowne
Social Desirability Index

Statistics	
Multiple R	0.3175
R squared	0.1008
Std.Dev.	6.7740

Variables Left in the Equation

	B	F ratio	Sig
V314	1.489	13.121	(<0.001)
Constant	10.541	32.050	0

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Regression	1	602.072	602.072	13.121	(< 0.001)
Residual	117	5368.718	45.886		
Total	118	5970.780	647.958		

For the RD16 Index

Statistics	
Multiple R	0.4477
R squared	0.2005
Std.Dev.	3.0221

Variable Left in the Equation

	B	F ratio	Sig
V007	1.199	11.098	0.001
V300	0.432	6.155	0.015
V006	0.367	5.732	0.018
V013	-1.025	5.268	0.023
Constant	5.051	5.673	0.019

ANOVA TABLE

Source	DF	SS	MS	F ratio	Sig
Regression	4	270.196	67.549	7.396	(< 0.001)
Residual	118	1077.723	9.133		
Total	122	1347.919	76.682		

enough (in the judgement of this author) to be considered a reliable indicator of the individual's score. It had been planned to next regress variables determined to be related to high SD response bias or low SD response bias. It was hoped that these predictor equations could predict with even greater accuracy the individual SD index score. Upon discovery that the two categories (HSD or LSD) could not be predicted with any accuracy, further regression analysis was abandoned.

Summary. Correlations obtained in testing Hypothesis three led to rejection of the null hypothesis;

$$H_o : \rho = 0$$

for the parent population. There were significant correlations in the sample population indicating linearity in the relationships between the MCSD and twenty-four out of 133 variables (factors), and the RD16 and fifteen out of 133 variables (factors).

Regression analysis of those variables cast doubt upon the null hypothesis:

$$H_o : B_1 = B_2 = \ldots = B_k = 0$$

Therefore, Hypothesis three requires replication (with larger sample sizes) to expand upon the evidence available.

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SOCIAL DESIRABILITY RESPONSE BIAS IN THE ORGANIZATIONAL ASSESSM--ETC(U)
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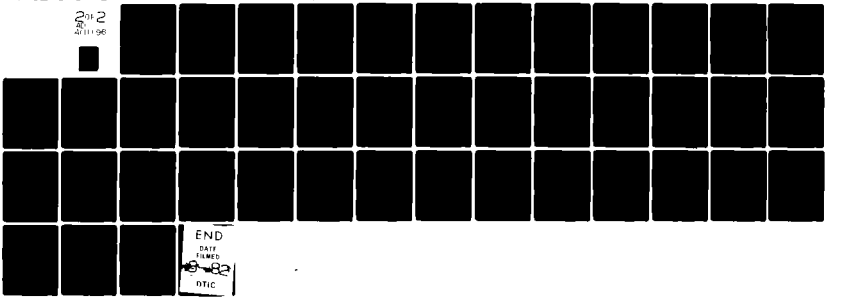

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

Chapter IV contains the results of all data analysis. Objective one was accomplished, in that analysis found SD response bias does indeed affect scores on the OAP, in particular scores for the OJI and for organizational ratings. The second objective was not accomplished because linear regression produced predictor equations with extreamly weak R^2 (0.1008 for MCSD and 0.2005 for RD16) values. Due to the high costs involved with a modification of existing programs and the existing data base, it was felt that the "fit" of the regression line was not good enough to accept.

CONCLUSIONS

Social desirability does have an effect upon OAP scores. Therefore, change agents may not always be receiving accurate data with which to conduct interventions. Expensive job enrichment programs could be undertaken when in fact none are needed. Conversely, an equally undesirable case is one in which enrichment

programs are not undertaken when they are needed. In a similar manner, supervisors would decide to recieve training which is unnecessary, or organizations could expend great efforts at improving communcations which do not in fact need improvement.

RECOMMENDATIONS

Sample Size

There is a need for additional research investigating the intervening effects of social desirability response bias in the Organizational Assessment Package. Further research should be indertaken using a much larger sample size to provide statistical validation of the findings in this thesis. This larger sample could then broaden its generalizations to the parent population; i.e., United States Air Force respondents.

Automatic Interaction Detection (AID)

Further studies exploring the effects of SD upon the OAP may involve usage of the AID technique. This computer program, developed at the University of Michigan's Institute for Social Research, is used to construct models in analysis of dependency situations (McNichols, 1980). The AID technique, through a sequential model building process, can often help identify the need for inclusion of specific interaction or

quadratic terms in a non-linear regression model. The failure of linear regression to accurately develop a predictor equation based upon existing items and/or factors within the OAP does not necessarily mean that predictive validity is not present. New research should explore this area further.

Discriminant Analysis

Another possibility in the search for predictors of SD response bias could be in the use of discriminant analysis. This proceedure will statistically distinguish between two or more groups, identifying those variables that are most important in imparting differences to the two groups. This proceedure may identify additional variables which, when regressed with social desirability index scores, could produce a more reliable predictor equation.

Expanded Objectives

Finally, in addition to the use of different analysis techniques, new research should focus on the remaining factors used by OAP analysts in their determination of organizational health.

APPENDICES

APPENDIX A

ORGANIZATIONAL ASSESSMENT PACKAGE

PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, The Air Force Privacy Act Program, the following information about this survey is provided:

a. Authority: 10 U.S.C., 8012, Secretary of the Air Force: Powers and Duties, Delegation by Compensation E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons.

b. Prinicpal Purpose: The survey is being conducted to assess your organization from a leadership and management perspective.

c. Routine Uses: Information provided by respondents will be treated confidentially. The averaged data will be used for organizational strength and weakness identification and Air Force wide research and development purposes.

d. Participation: Response to this survey is voluntary. Your cooperation in this effort is appreciated.

(PLEASE DO NOT TEAR, MARK ON, OR OTHERWISE DAMAGE THIS BOOKLET)

EXPIRATION DATE:

SCN 80-23

GENERAL INFORMATION

The leaders of your organization are genuinely interested in improving the overall conditions within their areas of responsibility. Providing a more satisfying Air Force way of life and increasing organizational effectiveness are also goals. One method of reaching these goals is by continual refinement of the management processes of the Air Force. Areas of concern include job related issues such as leadership and management; training and utilization; motivation of and concern for people; and the communication process.

This survey is intended to provide a means of identifying areas within your organization needing the greatest emphasis in the immediate future. You will be asked questions about your job, work group, supervisor, and organization. For the results to be useful, it is important that you respond to each statement thoughtfully, honestly, and as frankly as possible. Remember, this is <u>not</u> a test, there are no right or wrong responses.

Your completed response sheet will be processed by automated equipment, and be summarized in statistical form. Your individual response will remain confidential, as it will be combined with the responses of many other persons, and used for organizational feedback and possibly Air Force wide studies.

KEY WORDS

The following should be considered as key words throughout the survey:

-- Supervisor: The person to whom you report directly.

-- Work Group: All persons who report to the same supervisor that you do.

-- Organization: Your directorate/division/branch/section, etc.

INSTRUCTIONS

1. All statements may be answered by filling in the appropriate spaces on the response sheet provided. If you do not find a response that fits your case exactly, use the one that is the closest to the way you feel.

2. Be sure that you have completed Section 1 of the response sheet, as instructed by the survey administrator, before beginning Section 2.

3. Please use the pencil provided, and observe the following:

--Make heavy black marks that fill the spaces.

--Erase cleanly any responses you wish to change.

--Make no stray markings of any kind on the response sheet.

-Do not staple, fold or tear the response sheet.

-Do not make any markings on the survey booklet.

4. The response sheet has a 0-7 scale. The survey statements normally require a 1-7 response. Use the zero (0) response only if the statement truly does not apply to your situation. Statements are responded to by marking the appropriate space on the response sheet as in the following example:

Using the scale below, evaluate the sample statement.

1. - Strongly disagree
2 - Moderately disagree
3 - Slightly disagree
4 - Neither agree nor disagree
5 - Slightly agree
6 - Moderately agree
7 - Strongly agree

Sample Statement. The information your work group receives from other work groups is helpful.

If you moderately agree with the sample statement, you would blacken the oval (6) on the response sheet.

Sample Response:

5. When you have completed the survey, please turn in the survey materials as instructed in the introduction.

BACKGROUND INFORMATION

This section of the survey concerns your background. The information requested is to insure that the groups you belong to are accurately represented and not to identify you as an individual. Please use the separate response sheet and darken the oval which corresponds to your response to each question.

1. Total years in the Air Force:

    1. Less than 1 year.
    2. More than 1 year, less than 2 years.
    3. More than 2 years, less than 3 years.
    4. More than 3 years, less than 4 years.
    5. More than 4 years, less than 8 years.
    6. More than 8 years.

2. Total months in present career field:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

3. Total months at this station:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less that 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

4. Total months in present position:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

5. Your Ethnic Group is:

1. American Indian or Alaskan Native
2. Asian or Pacific Islander
3. Black, not of Hispanic Origin
4. Hispanic
5. White, not of Hispanic Origin
6. Other

6. Your highest education obtained is:

1. Non-high school graduate
2. High school graduate or GED
3. Less than two years college
4. Two years or more college
5. Bachelors Degree
6. Masters Degree
7. Doctoral Degree

7. Highest level of professional military education (residence or correspondence):

0. None or not applicable
1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2)
2. NCO Leadership School (NCO Phase 3)
3. NCO Adademy (NCO Phase 4)
4. Senior NCO Adademy (NCO Phase 5)
5. Squadron Officer School
6. Intermediate Service School (i.e., ACSC, AFSC)
7. Senior Service School (i.e., AWC, ICAF, NWC)

8. How many people do your directly supervise?

1. None
2. 1
3. 2
4. 3
5. 4 to 5
6. 6 to 8
7. 9 or more

9. For how many people do you write performance reports?

1. None
2. 1
3. 2
4. 3
5. 4 to 5
6. 6 to 8
7. 9 or more

10 Does your supervisor actually write your performance reports?

1. yes
2. no
3. not sure

11. Which of the following "best" describes your marital status?

0. Not Married
1. Married: Spouse is a civilian employed outside home.
2. Married: Spouse is a civilian employed outside home - geographically separated.
3. Married: Spouse not employed outside home.
4. Married: Spouse not employed outside home - geographically separated.
5. Married: Spouse is a military member.
6. Married: Spouse is a military member - geographically separated.
7. Single Parent.

12. What is your usual work schedule?

1. Day shift, normally stable hours
2. Swing shift (about 1600-2400)
3. Mid shift (about 2400-0800)
4. Rotating shift schedule
5. Day or shift work with irregular/unstable hours
6. Frequent TDY/travel or frequently on-call to report to work
7. Crew schedule

13. How often does your supervisor hold group meetngs?

1. Never
2. Occasionally
3. Monthly
4. Weekly
5. Daily
6. Continuously

14. How often are group meetings used to solve problems and establish goals?

1. Never
2. Occasionally
3. About half the time
4. All of the time

15. What is your aeronautical rating and current status?

1. Nonrated, not on aircrew
2. Nonrated, now on aircrew
3. Rated, in crew/operations job
4. Rated, in support job

16. Which of the following best describes your career or employment intentions?

1. Planning to retire in the next 12 months.
2. Will continue in/with the Air Force as a career
3. Will most likely continue in/with the Air Force as a career.
4. May continue in/with the Air Force
5. Will most likely not make the Air Force a career
6. Will separate/terminate from the Air Force as soon as possible.

JOB INVENTORY

Below are items which relate to your job. Read each statement carefully and then decide to what extent the statement is true of your job. Indicate the extent to which the statement is true for your job by choosing the phrase which best represents your job.

1. Not at all
2. To a very little extent
3. To a little extent
4. To a moderate extent
5. To a fairly large extent
6. To a great extent
7. To a very great extent

Select the corresponding number for each question and enter it on the separate response sheet.

17. To what extent does your job require you to do many different things, using a variety of your talents and skills?

18. To what extent does your job involve doing a whole task or unit of work?

19. To what extent is your job significant, in that it affects others in some important way?

20. To what extent does your job provide a great deal of freedom and independence in scheduling your work?

21. To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?

22. To what extent are you able to determine how well you are doing your job without feedback from anyone else?

23. To what extent do additional duties interfere with the performance of your primary job?

24. To what extent do you have adequate tools and equipment to accomplish your job?

25. To what extent is the amount of work space provided adequate?

26. To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?

27. To what extent does doing your job well affect a lot of people?

28. To what extent does your job provide you with the chance to finish completely the piece of work you have begun?

1. Not at all
2. To a very little extent
3. To a little extent
4. To a moderate extent
5. To a fairly large extent
6. To a great extent
7. To a very great extent

29. To what extent does your job require you to use a number of complex skills?

30. To what extent does your job give you freedom to do your work as you see fit?

31. To what extent are you allowed to make the major decisions required to perform your job well?

32. To what extent are you proud of your job?

33. To what extent do you feel accountable to your supervisor in accomplishing your job?

34. To what extent do you know exactly what is expected of you in performing your job?

35. To what extent are your job performance goals difficult to accomplish?

36. To what extent are your job performance goals clear?

37. To what extent are your job performance goals specific?

38. To what extent are your job performance goals realistic?

39. To what extent do you perform the same tasks repeatedly within a short period of time?

40. To what extent are you aware of promotion/advancement opportunities that affect you?

42. To what extent do co-workers in your work group maintain high standards of performance?

43. To what extent do you have the opportunity to progress up your career ladder?

44. To what extent are you being prepared to accept increased responsibility?

45. To what extent do people who perform well receive recognition?

46. To what extent does your work give you a feeling of pride?

1. Not at all
2. To a very little extent
3. To a little extent
4. To a moderate extent
5. To a fairly large extent
6. To a great extent
7. To a very great extent

47. To what extent do you have the opportunity to learn skills which will improve your promotion potential?

48. To what extent do you have the necessary supplies to accomplish your job?

49. To what extent do details (tasks not covered by primary or additional duty descriptions) interfere with the performance of your primary job?

50. To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

JOB DESIRES

The statements below deal with job related characteristics. Read each statement and choose the response which best represents how much you would like to have each characteristic in you job.

In my job, I would like to have the characteristics described:

1. Not at all
2. A slight amount
3. A moderate amount
4. A fairly large amount
5. A large amount
6. A very large amount
7. An extremely large amount

51. Opportunities to have independence in my work.

52. A job that is meaningful.

53. The opportunity for personal growth in my job.

54. Opportunities in my work to use my skills.

55. Opportunities to perform a variety of tasks.

56. A job which tasks are repetitive.

57. A job in which tasks are relatively easy to accomplish.

SUPERVISION

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the phrase which best represents your attitude concerning your supervisor.

1. Strongly disagree
2. Moderately disagree
3. Slightly disagree
4. Neither agree nor disagree
5. Slightly agree
6. Moderately agree
7. Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

58. My supervisor is a good planner.

59. My supervisor sets high performance standards.

60. My supervisor encourages teamwork.

61. My supervisor represents the group at all times.

62. My supervisor establishes good work procedures.

63. My supervisor has made his responsibilities clear to the group.

64. My supervisor fully explains procedures to each group member.

65. My supervisor performs well under pressure.

66. My supervisor takes time to help me when needed.

67 My supervisor asks members for their ideas on task improvements.

68. My supervisor explains how my job contributes to the overall mission.

69. My supervisor helps me set specific goals.

70. My supervisor lets me know when I am doing a good job.

71. My supervisor lets me know when I am doing a poor job.

72. My supervisor always helps me improve my performance.

73. My supervisor insures that I get job related training when needed.

74. My job performance has improved due to feedback received from my supervisor.

75. When I need technical advice, I usually go to my supervisor.

76. My supervisor frequently gives me feedback on how well I am doing my job.

WORK GROUP PRODUCTIVITY

The statements below deal with the output of your work group. The term "your work group" refers to you and your co-workers who work for the same supervisor. Indicate your agreement with the statement by selecting the phrase which best expresses your opinion.

1. Strongly disagree
2. Moderately disagree
3. Slightly disagree
4. Neither agree nor disagree
5. Slightly agree
6. Moderately agree
7. Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

77. The quantity of output of your work group is very high.

78. The quality of output of your work group is very high.

79 When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.

80. Your work group always gets maximum output from available resources (e.g., personnel and material).

81. Your work group's performance in comparison to similar work groups is very high.

ORGANIZATION CLIMATE

Below are items which describe characteristics of your organization. The term "your organization" refers to your squadron or staff agency. Indicate your agreement by choosing the phrase which best represents your opinion concerning your organization.

1. Strongly disagree
2. Moderately disagree
3. Slightly disagree
4. Neither agree nor disagree
5. Slightly agree
6. Moderately agree
7. Strongly agree

Select the corresponding number for each item and enter it on the separate response sheet.

1. Strongly disagree
2. Moderately disagree
3. Slightly disagree
4. Neither agree or disagree
5. Slightly agree
6. Moderately agree
7. Strongly agree

82. Ideas developed by my work group are readily accepted by management personnel above my supervisor.

83. My organization provides all the necessary information for me to do my job effectively.

84. My organization provides adequate information to my work group.

85. My work group is usually aware of important events and situations.

86. My complaints are aired satisfactorily.

87. My organization is very interested in the attitudes of the group members toward their jobs.

88. My organization has a very strong interest in the welfare of its people.

89. I am very proud to work for this organization.

90. I feel responsible to my organization in accomplishing its mission.

91. The information in my organization is widely shared so that those needing it have it available.

92. Personnel in my unit are recognized for outstanding performance.

93. I am usually given the opportunity to show or demonstrate my work to others.

94. There is a high spirit of teamwork among my co-workers.

95. There is outstanding cooperation between work groups of my organization.

96. My organization has clear-cut goals.

97. I feel motivated to contribute my best efforts to the mission of my organization.

98. My organization rewards individuals based on performance.

99. The goals of my organization are reasonable.

100. My organization provides accurate information to my work group.

JOB RELATED ISSUES

The items below are used to determine how satisfied you are with specific job related issues. Indicate your degree of satisfaction or dissatisfaction with each issue by choosing the most appropriate phrase.

1. Extremely dissatisfied
2. Moderately dissatisfied
3. Slighly dissatisfied
4. Neither satisfied nor dissatisfied
6. Slightly satisfied
6. Moderately satisfied
7. Extremely satisfied

Select the corresponding number for each question and enter it on the separate response sheet.

101. Feeling of Helpfulness
The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.

102. Co-Worker Relationships
My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.

103. Family Attitude Toward Job
The recognition and the pride my family has in the work I do.

105. On-the-Job Training (OJT)
The OJT instructional methods and instructor's competence.

105. Technical Training (Other than OJT)
The technical training I have received to perfc n my current job.

106. Work Schedule
My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.

107. Job Security

108. Acquired Valuable Skills
The chance to acquire valuable skills in my job which prepare me for future opportunities.

109. My Job as a Whole

APPENDIX B

MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE AND RD16

MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE NORMS

Mean	15.94
Mean SD	5.54

RD16 NORMS

Mean	12.68
SD	2.43

MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE

Key		M-C SD Items
T	1.	Before voting I thoroughly investigate the qualifications of all the candidates.
T	2.	I never hesitate to go out of my way to help someone in trouble.
F	3.	It is sometimes hard for me to go on with my work if I am not encouraged.
T	4.	I have never intensely disliked anyone.
F	5.	On occasion I have had doubts about my ability to succeed in life.
F	6.	I sometimes feel resentful when I don't get my way.
T	7.	I am always careful about my manner of dress.
T	8.	My table manners at home are as good as when I eat out in a restaurant.
F	9.	If I could get into a movie without paying for it and be sure I was not seen, I would probably do it.
F	10.	On a few occasions, I have given up doing something because I thought too little of my ability.
F	11.	I like to gossip at times.
F	12.	There have been times when I felt like rebelling against people in authority even though I knew they were right.
T	13.	No matter who I'm talking to, I'm always a good listener.
F	14.	I can remember "playing sick" to get out of something.

F 15. There have been occasions when I took advantage of someone.

T 16. I'm always willing to admit it when I make a mistake.

T 17. I always try to practice what I preach.

T 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

F 19. I sometimes try to get even, rather than forgive and forget.

T 20. When I don't know something I don't at all mind admitting it.

T 21. I am always courteous, even to people who are disagreeable.

F 22. At times I have really insisted on having things my own way.

F 23. There have been occasions when I felt like smashing things.

T 24. I would never think of letting someone else be punished for my wrongdoings.

T 25. I never resent being asked to return a favor.

T 26. I have never been irked when people expressed ideas very different from my own.

T 27. I never make a long trip without checking the safety of my car.

F 28. There have been times when I was quite jealous of the good fortune of others.

T 29. I have almost never felt the urge to tell someone off.

F 30. I am sometimes irritated by people who ask favors of me.

T 31. I have never felt that I was punished without cause.

F 32. I sometimes think when people have a misfortune they only got what they deserved.

T 33. I have never deliberately said something that hurt someone's feelings.

Key		RD16 Items
T	1.	I find that I can help others in many ways.
T	2.	I feel that I am better off than my parents were at my age.
T	3.	In spite of many changes, there are still definite rules to live by.
T	4.	One can always find friends if he tries.
T	5.	Anyone can raise his standard of living if he is willing to work at it.
T	6.	Most people really believe that honesty is the best policy.
T	7.	In general, I am satisfied with my lot in life.
T	8.	People will be honest with you as long as you are honest with them.
F	9.	It is difficult to think clearly about right and wrong these days.
F	10.	Many people are friendly only because they want something from you.
F	11.	If the odds are against you, it's impossible to come out on top.
F	12.	At times I feel that I am a stranger to myself.
F	13.	The future looks very bleak.
F	14.	I often feel that no one needs me.
F	15.	I am so "fed up" that I can't take it any more.
F	16.	To get along with people one must put on an act.

APPENDIX C

FORMULAS

OJI Total-Variable Score Formula
(factor 808)

V201+V202+V203+V270+V271+V272+8-
V206+V207+V208+V209+V210+
V211+V212+V213

Supervisory Rating-Factor Formula

818A+819/2

Organizational Rating-Factor Formula

820+821+824/3

APPENDIX D

ORGANIZATIONAL ASSESSEMENT PACKAGE NORMATIVE DATA

Statement Number	Variable Number	Mean	SD
17	201	4.835	1.703
18	202	4.947	1.646
19	203	5.678	1.548
20	270	3.826	1.899
21	271	3.943	1.828
22	272	4.428	1.602
23	206	3.580	1.840
24	207	4.618	1.588
25	208	4.709	1.647
26	209	5.021	1.578
27	210	5.507	1.583
28	211	5.037	1.571
29	212	4.291	1.737
30	213	3.962	1.724
31	214	4.104	1.742
32	215	5.026	1.816
33	216	5.028	1.686
34	217	5.409	1.488
35	218	3.632	1.580
36	273	4.927	1.504
37	274	4.796	1.540
38	221	4.652	1.580
39	226	4.972	1.671
40	227	4.819	1.676
41	234	4.664	1.821
42	238	4.778	1.480
43	239	3.880	1.763
44	240	4.340	1.831
45	241	3.713	1.707
46	275	4.710	1.846
47	276	3.741	1.710
48	277	4.569	1.514
49	278	3.546	1.686
50	279	4.157	1.793
51	249	5.067	1.581
52	250	5.762	1.496
53	251	5.623	1.589
54	252	5.715	1.494
55	253	5.415	1.589
56	255	3.070	1.686
57	258	4.778	1.480
58	404	4.834	1.892
59	405	5.182	1.758
60	410	5.140	1.842

Statement Number	Variable Number	Mean	SD
61	411	4.825	1.990
62	412	4.828	1.826
63	413	5.002	1.863
64	445	4.658	1.897
65	416	5.038	1.918
66	424	5.384	1.806
67	426	4.985	1.914
68	428	4.985	1.904
69	431	4.234	1.893
70	433	4.696	1.995
71	434	5.365	1.706
72	435	4.467	1.851
73	436	4.619	1.891
74	437	4.355	1.973
75	439	4.499	2.096
76	442	4.356	1.965
77	259	5.557	1.583
78	260	5.574	1.535
79	261	5.693	1.519
80	264	5.040	1.746
81	265	5.602	1.551
82	300	3.950	1.822
83	301	4.358	1.796
84	302	4.449	1.715
85	303	4.784	1.772
86	304	4.105	1.909
87	305	4.035	2.010
88	306	4.222	2.028
89	307	4.692	2.005
90	308	5.568	1.696
91	309	4.381	1.797
92	310	4.463	1.902
93	311	4.448	1.804
94	312	4.480	1.953
95	313	4.128	1.861
96	314	4.565	1.809
97	315	5.083	1.877
98	316	4.013	1.946
99	317	4.909	1.622
100	318	4.483	1.716
101	705	5.062	1.669
102	709	4.944	1.763
103	710	5.052	1.746
104	711	4.362	1.815
105	712	4.459	1.870
106	717	5.023	1.946
107	718	5.162	1.789
108	719	4.481	2.024
109	723	4.890	1.962

Factor	Mean	SD
800	4.569	1.576
801	5.002	1.346
802	5.596	1.418
804	4.727	1.379
805	4.582	1.150
806	5.526	1.296
807	105.18	68.173
808	65.515	13.198
809	13.689	3.187
810	4.697	1.059
811	4.874	1.737
812	4.992	1.108
813	3.970	1.501
814	4.890	1.467
816	3.079	1.423
817	4.075	1.286
818	4.951	1.588
819	4.536	1.641
820	4.448	1.402
821	5.503	1.290
822	4.954	1.308
823	4.400	1.647
824	4.519	1.471
825	108.57	72.038

APPENDIX E

EXPLANATION OF MINNISOTA MULTIPHASIC PERSONALITY INVENTORY (MMPI) SCALES

The MMPI consists of 550 affirmative statements about which the respondent answers True, False or Cannot say. It is designed to be administered to adults 16 years and older. In its regular administration, the MMPI provides scores on ten "clinical scales" listed below:

1. Hs: Hypochondriasis
2. D: Depression
3. Hy: Hysteria
4. Pd: Psychopathic deviate
5. Mf: Masculinity-femininity
6. Pa: Paranoia
7. Pt: Psychasthenia
8. Sc: Schizophrenia
9. Ma: Hypomania
10. Si: Social introversion

Eight of these scales consist of items that differentiate between a specified clinical group and a normal control group of approximately 700 persons. These scales were developed empirically by criterion keying of items, the criterion being traditional psychiatric diagnosis.

A special feature of the MMPI is its utilization of three validity scales. These scales are not concerned with validity in the technical sense. In effect, they represent checks on carelessness, misunderstanding, malingering, and the operation of special response sets and test-taking attitudes. The validating scales are listed on the following page.

Lie Score (L): Based upon a group of items that make the examinee appear in a favorable light, but are unlikely to be truthfully answered in the favorable direction.

Validity Score (F): Determined from a set of items very infrequently answered in the scored direction by the standardization group. Although representing undesirable behavior, these items do not cohere in any pattern of abnormality. Hence, it is unlikely that any one person actually shows all or most of these systems. A high F score may indicate scoring errors, carelessness in responding, gross eccenticity, or deliberate malingering.

Correction Score (K): Utilizing still another combination of specially chosen items, this score provides a measure of test-taking attitude related to both L and F, but believed to be more subtle. A high K score may indicate defensiveness or an attempt to "fake good". A low score may represent excessive frankness and self-criticism or a deliberate attempt to "fake bad" [Anastasi, 1976:498].

The L score and F scores are used for an overall evaluation of the test record. If either score exceeds a specified value, the response is considered invalid. The K score is used an a supressor variable. It is employed to compute a correction factor which is added or subtracted to some of the clinical scale scores to obtain adjusted totals.

About three hundred new scales have been developed by independent investigators, since the MMPI's initial inception. Examples of these new non-clinical scales include; Ego Strength (ES), Dependency (Dy), Dominance (Do), Prejudice (Pr), and Social Status (St). Another grouping of the MMPI items is represented by the content scales developed by Wiggins (1968). In the

construction of these scales, item clusters that were based on a subjective classification of content were revised and refined through factor-analytic and internal-consistency proceedures.

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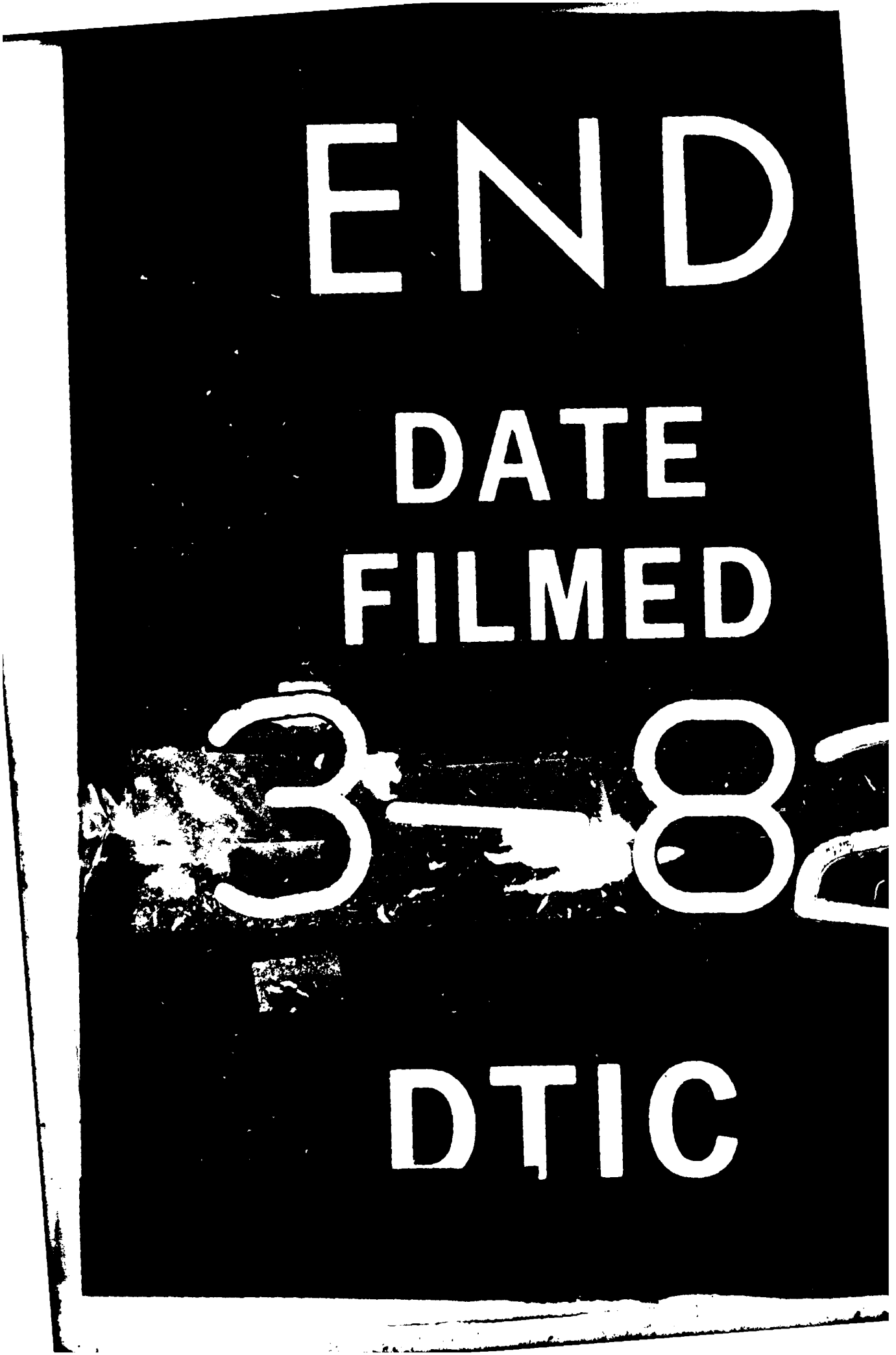
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